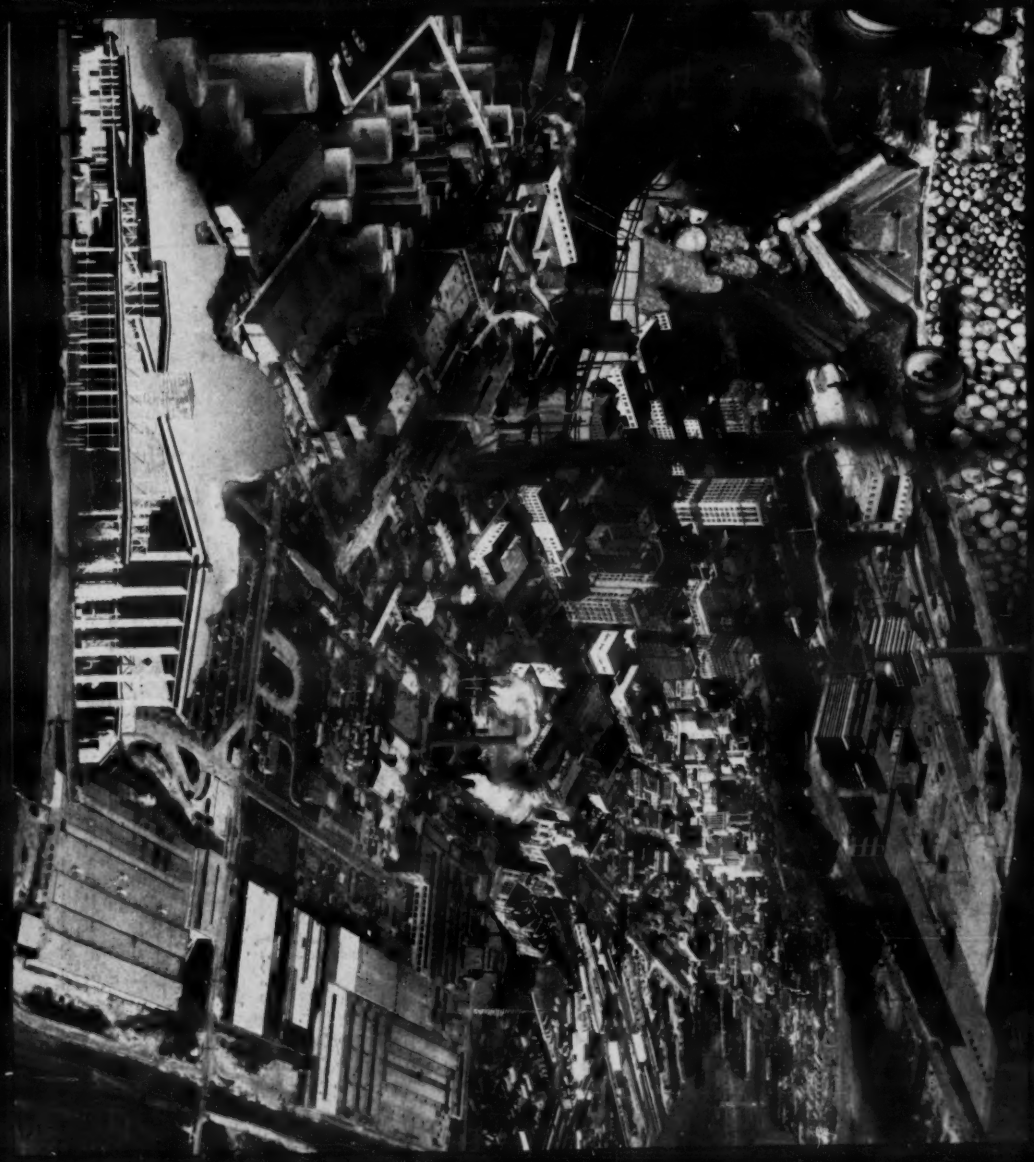
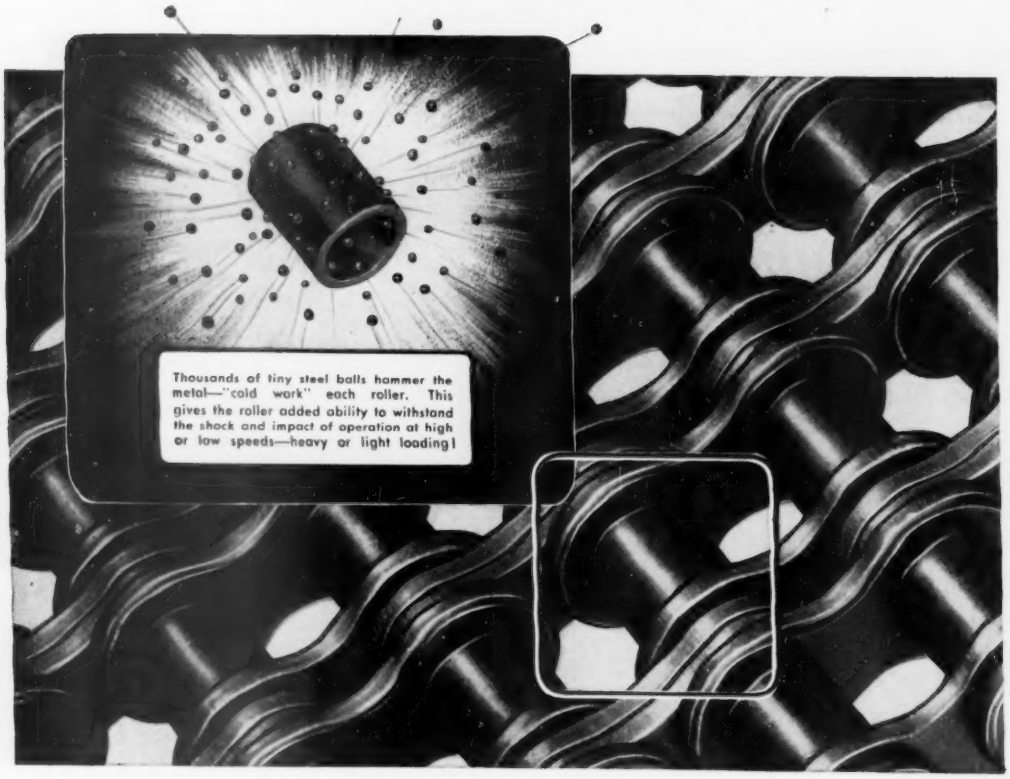
THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY



Get the roller chain with rollers that are

SHOT PEENED

for EXTRA fatigue life!


Thousands of tiny steel balls hammer the metal—"cold work" each roller. This gives the roller added ability to withstand the shock and impact of operation at high or low speeds—heavy or light loading!

You get this added feature in every LINK-BELT Roller Chain

You get absolute uniformity, too. No highs. No lows. Just smooth, flowing dependable chains that pay off in wide flexibility—greater performance—longer life.

You see, LINK-BELT Roller Chains are made from carefully selected materials with controlled heat treatment to assure uniformity and absence of weak members, then—rollers are shot peened to give them the extra fatigue life needed for today's higher speeds and heavier loads.

Link-Belt Roller Chain is available in single or multiple widths, in ⅜" to 3" pitch and double pitch. If you have a roller chain problem, see the LINK-BELT engineer nearest you.

LINK-BELT

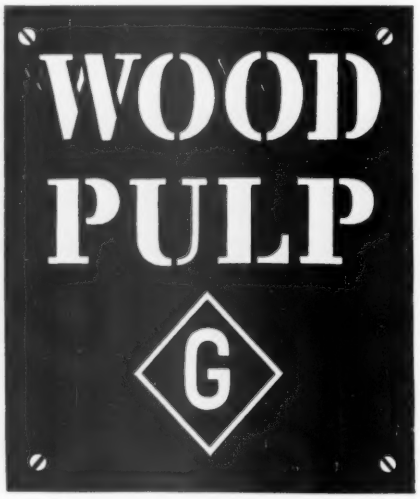
ROLLER CHAINS and SPROCKETS

LINK-BELT COMPANY. Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Johannesburg. Offices, Factory Branch Stores and Distributors in principal cities. 12,207

3 WIDELY USEFUL NATIONAL PAPER DYES

National Aniline PAPER DYES

Established 1886



"No wisdom won with weariness."

HENRY C. BUNNER

Facilities of the Pulp and Paper Industry have increased prodigiously. Sources of supply have multiplied. But with paper consumption by the average American family up from 250 pounds to 1,400 pounds a year since only 1930, sufficient production is inevitably a problem.

The Industry may be counted upon to use its resources, experience and knowledge unremittingly to build strong and well for tomorrow's needs.

★

GOTTESMAN & COMPANY

— INCORPORATED —

100 PARK AVENUE • NEW YORK 17, N. Y.

EUROPEAN OFFICES: Birger Jarlsgatan 8, Stockholm, Sweden

PULP & PAPER
"The Cellulose Age"
PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

A MILLER FREEMAN PUBLICATION

Publication Office
Executive, Editorial and Advertising Offices
SEATTLE—71 Columbia St. (4); MA 1626

Other Editorial and Advertising Offices
NEW YORK—370 Lexington Ave. (17); MU 3-9294
CHICAGO—55 East Washington; ST 2-1100
NEW ORLEANS—3518 Dante St. (18); AM 2762
VANCOUVER, B. C.—675 W. Hastings St.; MA 1520
534 SW Third Ave., Portland 4, Ore.; 121 Second St., San Francisco 5; 815 Witmer St., (17) Los Angeles

Contents of this magazine copyrighted 1951 by Miller Freeman Publications, Inc., and may not be reproduced in part or whole without written permission.

MILLER FREEMAN ..... PRESIDENT
MILLER FREEMAN, JR. ..... SECRETARY-TREASURER

PULP & PAPER STAFF
LAWRENCE K. SMITH ..... MANAGER
ALBERT WILSON ..... EDITOR
RALPH DAVID ..... ASSOCIATE EDITOR
CHARLES L. SHAW ..... ASSOCIATE EDITOR
WILLIAM J. KREBS ..... ASSOCIATE EDITOR
ROBERT E. WALTERS ..... ASSOCIATE EDITOR

Production Mgrs.: Lucile Ayers (Adv.) and Elsie Campbell (Edit.); Business Rep.: M. F. Bosworth. Field Editors: L. H. Blackerby, Stuart Leete, A. W. Ponsford. Forestry Editor: W. E. Crosby. Readers-Advertisers Service: Virginia Meenagh, Dorothy Bell.

Interior Department Campaign Flounders

Will Secretary of Interior Chapman and other Interior officials, past and present, gracefully eat their words when the Ketchikan mill is built, financed entirely by private enterprise?

Just recently, said Secretary Chapman: "Ultimately, Alaska will contribute billions of dollars a year to national income. This will be only possible when natural resources are fully utilized. This is a task too great for small groups of individuals, or even for Alaska. It is a responsibility of the *federal government. . . .*"

But this nonsense was not original from his mouth. Essentially the same words have been uttered before by other Interior officials.

Paper Most Used After Water

How sound is your industry? What about its future?

Beloit Iron Works' movie, "The Paper Story," (available for your association meeting—25 minutes, 16 mm., sound-color), has the answer to end all such questions:

> *Man uses paper more than any other commodity except water. You are in an indispensable industry.*

" . . . Those Who Help Themselves"

In some countries, the Marshall Plan has started industries rolling again and made vital contributions to rehabilitating those nations; in others it is a moot question as to whether it has helped or hindered, and whether it has made friends or not for us.

In many ways, foreign nations can do a lot to help themselves. The sulfur shortage has emphasized this. Instead of attempting to develop their own sources, which include pyrites, of course, they have leaned on the United States, and now we find our government curtailing our own industries in order to keep up shipments abroad.

We note that our contemporary French industry magazine *Papetier*, points out that many French papermakers still ignore the large supplies of esparto grass available to them in French West Africa. Yet British and Scottish mills buy 300,000 tons a year of this grass from the French colonies, make fine papers from it and sell the paper to France.

From Germany, Dr. Carl Schenck, distinguished Heidelberg forester, in an interview with PULP & PAPER published recently, said the German forests were beyond hope of restoring as producers for industry. At any rate, free Germany is in dire straits for pulpwood, as are other western European nations no longer able to obtain wood from Russia, Poland and the Russian zone of Germany. Germany also has lost a major portion of its woodpulp industry to Russia. Dr. Walter Brecht says the split-up of Germany "literally tore the industry apart" and 30% of mills in the Russian zone have been dismantled and moved into Russia. But one German industry magazine asserts that free Germany can help itself to a great extent if it would only develop straw pulp, using the efficient, modern straw pulping processes now available.

Goesta Hall, well known in this country among buyers of Swedish pulp, says one way to increase European production is a seven-day week with four 6-hour shifts.

And so it goes. In nation after nation, the industrious and the ingenious will find ways to help themselves. There were many examples revealed to readers of our WORLD REVIEW number, our recent annual issue carrying the first nation-by-nation report on this industry ever published which goes beyond bare cold statistics. Examples are Spain, Switzerland and Japan. Others can do what they have done.

Freedom and Flexibility Factor

"Possibly the most important of all our advantages is our freedom. In the freedom of the press, freedom to worship as we see fit, freedom to write and talk, freedom for each of us to choose a course of action—this nation has a flexibility which may prove a deciding factor in solving any problems set before us, either in war or in peace."—*Walter Evans, vice president, Westinghouse Electric Corp.*

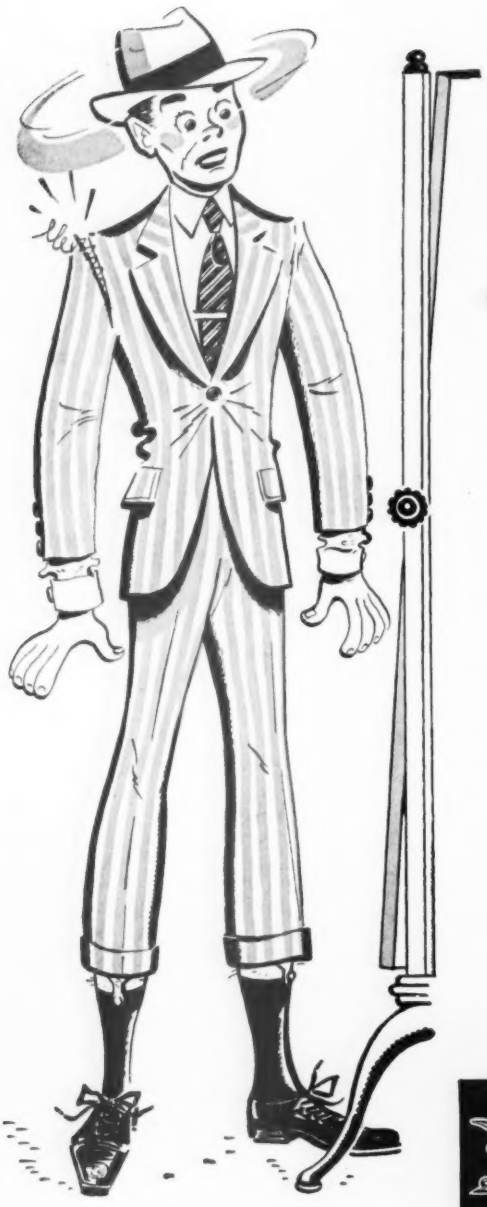
IN THIS ISSUE

Roaring Springs Story 34
Alaska Mill Engineers 36
Meetings in South 37
Munchausen Stories 42
DPA Certificates 44
Comments Hollis's Article 50
Modernizing Supercalenders 52
SWL Pipeline 64
Little Mill Story 68
Filler Stock Preparation 70
Eddy's Sulfite Bleach Plant 92
PERSONAL NEWS:
Northwest, Pacific Coast, East 66
Northeast 76
South, Canadian 96
PULPWOOD SECTION:
Woods Management in Virginia 80
Integration in South 85

PULP & PAPER circulates all over the world. *It is read in virtually every pulp and paper company office and mill throughout the United States, Canada, Mexico, Alaska, Hawaii, the Philippines, Australia and New Zealand. It is read in many other offices and mills in Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Uruguay, Venezuela, England, Ireland, Scotland, Sweden, Norway, Finland, France, Germany, Austria, Belgium, Holland, Czechoslovakia, Italy, Spain, Switzerland, Soviet Russia, Poland, Yugoslavia, India, Pakistan, Israel, South Africa, China, Japan, Formosa, both near and far around the world, where pulp and paper are made.*

ABC

PULP & PAPER *is published monthly, except June, when publication is semi-monthly, at Bristol, Conn., by Miller Freeman Publications, Inc. Subscription prices for 13 issues per year (12 monthly issues and also the valuable and comprehensive reference issue entitled the World Review Number) are as follows: In the United States, Canada, Mexico and other Pan American Union nations—$3 for one year or $5 for two years. In all other countries—$4 for one year and $7 for two years. Entered as second class matter at postoffice, Bristol, Conn., under Act of March 3, 1879. Postmaster: Please send Notice 3579 to* PULP & PAPER, *71 Columbia St., Seattle 4, Wash.*



Not everybody takes a "Regular"

As a matter of fact, some men can't find a really perfect fit unless they have their suits tailor-made.

It's that way with the supplies you buy, too. For instance, we have a complete line of standard starches and other corn products for paper mill use; but we are *also* set up to provide you with any *special* formula or product, *tailor-made* to your specifications.

And . . . standard or special . . . you'll want to buy from a company like Anheuser-Busch, whose reputation for products of highest quality, uniformity and dependability is as dominant in the paper industry as it is with retailers and consumers all over the world.

CORN STARCHES
DEXTRINES
GUMS
CORN SYRUPS

FOR FURTHER INFORMATION PHONE OR WRITE

ANHEUSER-BUSCH, INC.

CORN PRODUCTS DEPARTMENT

ST. LOUIS, MO.

SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*MAN MADE MOUNTAINS

Sulphur from the field collecting stations is delivered to the vats through insulated pipe lines which discharge directly on the vats. The sulphur is pumped at such a rate that the height of the vat is increased only a few inches per day, the slight vertical rise being the result of a large horizontal area which provides maximum cooling surface and ample tonnage capacity. As the sulphur solidifies it gradually builds up into a great block or vat of solid sulphur, which may be as large as 1200 feet long, 50 feet high, and 200 feet wide, and containing as much as half a million tons of sulphur.

The discharge lines are placed so that the liquid sulphur is spread in an even layer over the entire surface of the vat and is permitted to solidify uniformly. If the liquid sulphur is introduced too rapidly or is not properly distributed, pockets of liquid sulphur will be covered by a crust and remain in the solid sulphur. The low heat-conductivity of sulphur might keep such pockets liquid for a year or more.

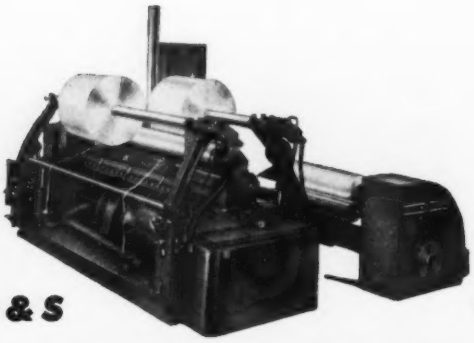
Loading operations at our Newgulf, Texas mine

TEXAS GULF SULPHUR CO. INC.

75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

Cut Your Downtime on mill roll changing to 1 Minute or Less



with the **NEW B&S**

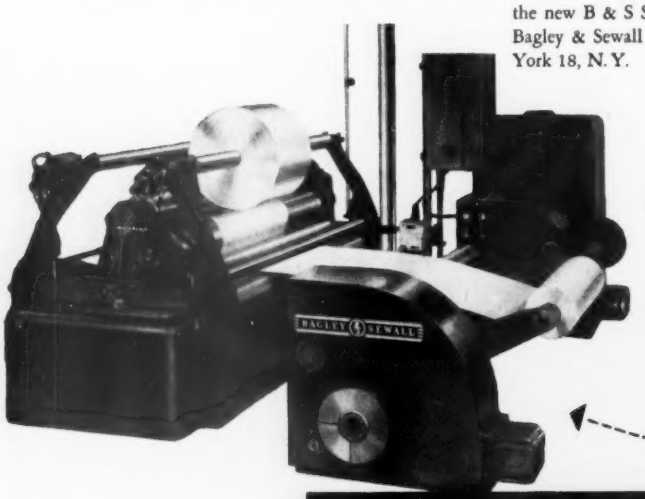
SHAFTLESS BACKSTAND

Money-consuming downtime on mill roll changing is cut to the bone by the wholly automatic B & S Shaftless Backstand. Here is what Mr. C. Carr Sherman, President of H. P. Smith Paper Co., has to say about this equipment:

"The engineering of this new unit indicates a fine understanding of the problems of the users of this type of equipment. The Backstand is much easier to handle as there are no shafts. It is also much easier and faster to make changes on it. I believe that changing rolls with this Backstand can be brought down to well under one half minute."

You may purchase the B & S Shaftless Backstand with or without the new B & S Slitter and Rewinder. The Backstand may be used on any type of rewinding equipment, as well as on waxing and laminating machinery, printing presses, etc.

For full details on the Shaftless Backstand and the new B & S Slitters and Rewinders, write to The Bagley & Sewall Company, 500 Fifth Avenue, New York 18, N. Y.



THE B & S #55 SHAFTLESS BACKSTAND features automatic tension and side register control; motor for raising and lowering mill roll arms, also motor for moving the arms to accommodate different width rolls. Entire working mechanism is totally enclosed.

designers and builders of

BAGLEY & SEWALL

WATERTOWN, NEW YORK

PAPERMAKING MACHINERY

SINCE 1853

500 FIFTH AVE., NEW YORK 18, N. Y.

Foreign Representative: **CASTLE & OVERTON, INC.**, 630 Fifth Avenue, New York 20, N.Y.

AT PORT ALBERNI, B.C.

Productive Log Barking

is "teamed up" with ADAMS *Automatic* **WATER FILTERS**

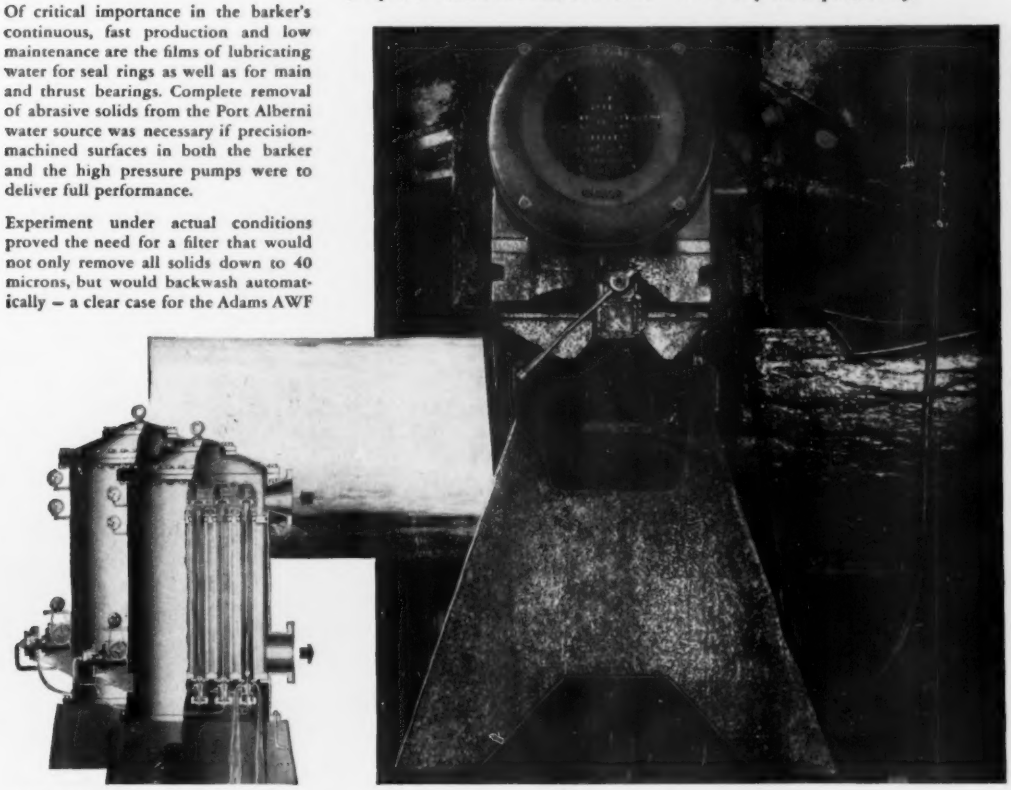
To convert raw water into a tool that blasts bark from logs of any shape or size, *Bloedel, Stewart & Welch* installed a matched team of Adams Automatic Water Filters ahead of their new Hansel hydraulic barkers.

Of critical importance in the barker's continuous, fast production and low maintenance are the films of lubricating water for seal rings as well as for main and thrust bearings. Complete removal of abrasive solids from the Port Alberni water source was necessary if precision-machined surfaces in both the barker and the high pressure pumps were to deliver full performance.

Experiment under actual conditions proved the need for a filter that would not only remove all solids down to 40 microns, but would backwash automatically – a clear case for the Adams AWF Filter with exclusive Adams Poro-Stone Filter tubes. ". . . Adams filters were installed and are performing admirably", states B. S. & W. resident manager.

If you would convert water – your cheapest raw material – into an efficient production tool for pulp, paper, and saw mills, it will pay you to investigate the R. P. Adams line of water filters now.

Send today for new 20-page, file size Bulletin No. 691 on Water Filtration in the Pulp and Paper Industry.



ADAMS AWF WATER FILTERS

HANSEL 60" RING BARKER

R. P. ADAMS CO., INC.

210 E. PARK DRIVE BUFFALO 17, N. Y.

THE CORRECT COMBINATION FOR SUCCESS—In addition to good instrument performance the success of this installation is also due to the willing and complete cooperation of the Brunswick Pulp and Paper Company with the Bristol organization in the engineering, installation, and operation of the control equipment.

"Outstandingly Successful Automatic Control"

Bristol Digester Control Gives Complete Satisfaction at Brunswick Pulp and Paper Co.

As reported by Brunswick, the results obtained from automatic control system include (1) saving in steam, (2) pull-over of liquor minimized, (3) ideal cooking schedule accurately and consistently repeated, (4) practically no maintenance required, (5) results fully satisfactory.

Like all Bristol control systems, this one is simple, adaptable. Operating men get familiar with it fast. Control panel units can be installed side-by-side to form a continuous panel for controlling an entire digester house, and can be enlarged to cover more digester.

Bristol Instruments Get the OK in Mills from Coast to Coast

Experience at Brunswick Pulp and Paper Company is typical of the performance of Bristol Recording Instruments and Automatic Control Systems in Paper Mills from coast to coast.

Bristol manufactures a complete line of automatic controlling, recording, indicating and telemetering instruments and component equipment for the Pulp and Paper Industry to take care of applications requiring from only one or a few instruments to those requiring extensive instrument control panels.

NEW SERIES 500 INSTRUMENTS ARE NOW AVAILABLE. Products of over 60 years of instrument experience, they are extremely simple in construction and will withstand the severest service. They require practically no maintenance – anybody can take care of a Bristol Series 500 instrument.

Bristol Has the Resources Needed to Give You the Best in Instrument Engineering

Bristol has developed techniques and facilities for handling even the most difficult and unusual control problems. Our engineers will relieve you of many worries by providing layout drawings and piping and wiring diagrams. We furnish panels in finished form with all internal piping and wiring complete. All you have to do is make main power and air-line connections. Our engineers stay with the job until operating satisfactorily.

Make use of Bristol resources. Write for Bulletins. THE BRISTOL COMPANY, 142 Bristol Road, Waterbury 20, Conn.

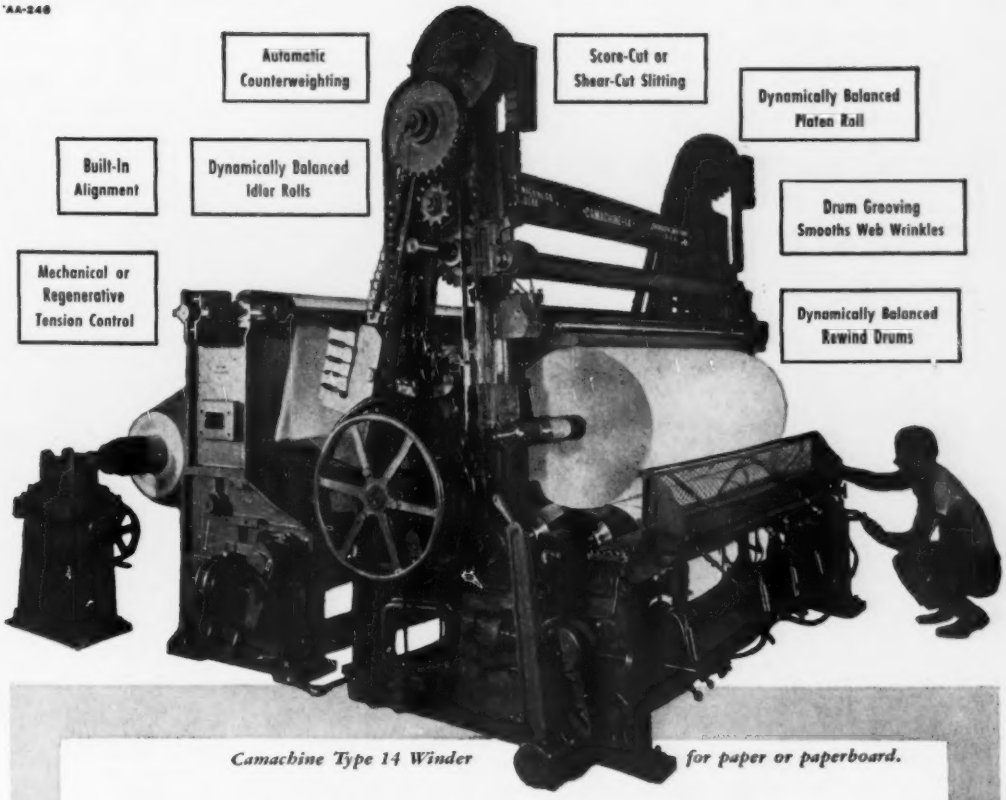
Quick Facts About Bristol Alkaline Digester Control System

Bristol Alkaline Digester Control System is used to automatically control digestion of Southern pine and Northwestern fir and hemlock in direct and indirect-steamed digesters, with either forced or natural circulation of both long and short cooks. *Installation requires no changes in digester equipment. It adapts itself to the digester, resulting in lower installation cost.* It is also adaptable to changes in operating conditions.

BRISTOL

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

'AA-248



Camachine Type 14 Winder for paper or paperboard.

Why do so many more mills depend on Camachines®?

One practical reason is that Cameron Machine Company provides a choice between *four* great, job-proved mill-type Camachines . . . each designed to meet a specific range of speed and capacity requirements . . . each backed by Cameron's half century of *specialized* experience.

CAMACHINE TYPE 20. Dynamically balanced to the maximum speed of 5000 fpm. Trim widths from 180" to 310". Built to your choice of 42", 60", or 72" maximum rewind diameter.

CAMACHINE TYPE 19. Dynamically balanced to the maximum speed of 3500 fpm. Trim widths from 117" to 192". Built to your choice of 42", 60", or 72" maximum rewind diameter.

CAMACHINE TYPE 18. Dynamically balanced to the maximum speed of 2500 fpm. Trim widths from 73" to 150". Built to your choice of 42", 60", or 72" maximum rewind diameter.

CAMACHINE TYPE 14. Dynamically balanced to the maximum speed of 1800 fpm. Trim widths from 53" to 92". Built to your choice of 38", 50", or 60" maximum rewind diameter.

Write for complete information • **CAMERON MACHINE COMPANY** • **61 POPLAR STREET** • **BROOKLYN 2, N.Y.**

CAMACHINE—the one outstanding name in roll production equipment

PACIFIC COAST SUPPLY COMPANY • PUBLIC SERVICE BUILDING, PORTLAND 4, ORE. • 260 CALIFORNIA ST., SAN FRANCISCO 19, CAL.

Have you ever seen a flying 'dust' man?

...Then watch a Buell engineer develop the most efficient means of Soda Ash Recovery and Fly Ash Collection for you!

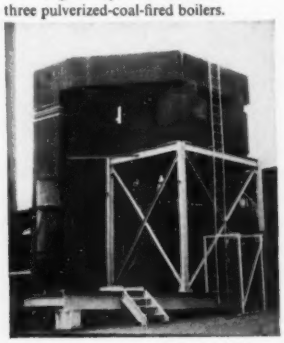
When Soda Ash goes unrecovered in your plant, you're probably losing money. When Fly Ash goes uncollected, you endanger product quality.

In either case, Buell engineers can help: Quickly, they pin-point the costly dust problem...compute the actual profit potential in recoverable Soda Ash...analyze the nuisance-dust emanating from your pulverized coal-fired boilers. Then, with a sureness that comes only by experience, they will design and build collectors that will most efficiently and economically do the job.

Here's why: Buell engineers—a highly skilled group of industrial "dust" men—are backed by more than 200 man-years of experience in the science of dust collection. As a result, Industry looks to these men for leadership in methods and equipment that will mean higher efficiency at less cost in dust collection.

For full information write today. Ask for the new, informative 'Dust Recovery' bulletin. Buell Engineering Co., Dept. 24-J, 70 Pine Street, New York 5, N. Y.

After an exhaustive study, engineers at a Southern paper mill selected Buell van Tongeren Cyclones for their three pulverized-coal-fired boilers.



ELECTRIC CYCLONIC

HIGH-EFFICIENCY CYCLONES • ELECTRIC PRECIPITATORS
TYPE 'LR' COLLECTORS • LOW DRAFT LOSS COLLECTORS
SPECIAL PURPOSE COLLECTORS • DUST HOPPER VALVES

buell

ENGINEERED EFFICIENCY IN DUST RECOVERY

JUST OFF THE PRESS

Bulletin #9041... 32 pages of data, photos and drawings in color describing the Dorrco Hydro-Treator... the high-rate water treatment unit that gives these results

PLANT	JUNCTION CITY, KANSAS	LOCKLAND, OHIO	APPLETON, WISCONSIN	A CANADIAN PAPER CO.	T.V.A., SHEFFIELD, ALABAMA
OPERATION	SOFTENING	SOFTENING	SOFT., COLOR & TURB. REM.	COLOR REM.	ALGAE & COLOR REM.
NO. & SIZE OF UNITS	2–35′ DIA.	1–81′ DIA.	1–45′ DIA.	2–80′ DIA.	1–50′ DIA.
CAP. PER UNIT, M.G.D.	1.5	1.0	2.1	10.0	2.0
GAL/SQ.FT./MIN.	1.00	.93	1.35	1.34	1.07
AVG. TURB. EFF. PPM	LESS THAN 0.2	5.0	2.4 TO 4.7	3 TO 5	4 TO 7
SLUDGE–% SOLIDS	35 TO 46.5	34.9 TO 39.2	16.7	–	–

Write today to The Dorr Company, Engineers, Barry Place, Stamford, Conn., for your free copy. There's no obligation.

DORRCO

DORR

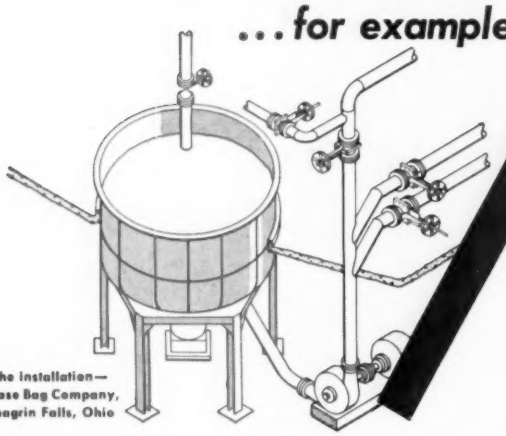
WORLD - WIDE RESEARCH • ENGINEERING • EQUIPMENT

THE DORR COMPANY • ENGINEERS • STAMFORD, CONN.
Associated Companies and Representatives in the principal cities of the world

for outstanding service

on High-consistency Stocks

...for example



The installation—
Chase Bag Company,
Chagrin Falls, Ohio

PROBLEM: To find a satisfactory replacement for valves in pulper outlet lines, causing frequent and costly shutdowns for cleanout of pulp stock trapped in valves.

WORKING CONDITIONS: Consistency of stock normally handled about 6%. Pulper operation continuous. Water temperature approximately 140 deg. F. Valves operated infrequently.

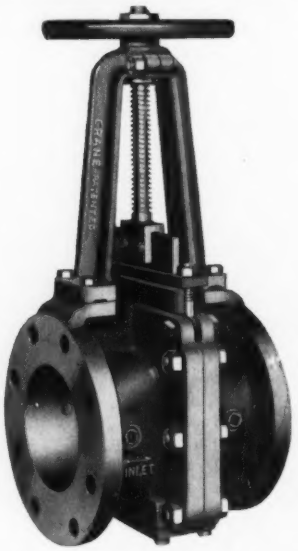
SOLUTION TO PROBLEM: Crane No. 1425 Non-clogging, Self-cleaning, Bonnet-less Pulp Stock Valves, featuring the patented *combing-and-shearing action* disc and seating design. Knife-edge disc shears through combed fibers to seat easily against lead stop.

RESULTS: In more than 5 years' service, Crane Valves have not required a single shutdown for cleanout. Clogging completely eliminated. Only routine maintenance given to valves.

Another typical case history demonstrating how Crane Quality Valves give greater satisfaction at low ultimate cost. And why . . . More Crane Valves are used than any other make!

Insist on Dependable Quality

CRANE VALVES

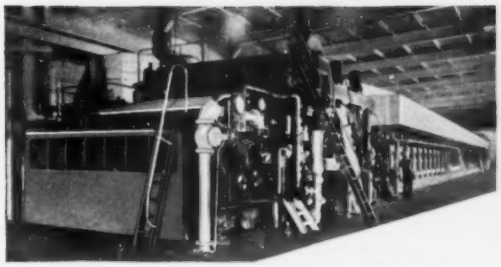


No. 1425 Crane Iron Body Pulp Stock Valve. Get literature on this line from your local Crane Branch or Crane Wholesaler.

CRANE CO.

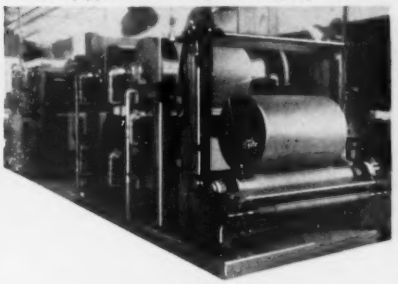
General Offices:
836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING



SKF-equipped Pusey & Jones Corporation Cylinder Machine.

SKF-equipped Frank W. Egan & Company Laminator.



why do so many prefer SKF ?

It's pretty hard *not* to buy good bearings today, but SKF is the preferred bearing with many paper-making machinery manufacturers.

There are good reasons why!

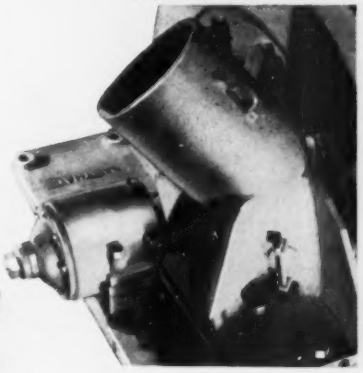
These manufacturers know SKF as a reliable, friendly supplier. They've learned to have implicit confidence in the experienced bearing engineering specialists at SKF's headquarters. They appreciate the teamwork of SKF field men who are qualified specialists in the application of bearings to paper-making machinery.

Their customers know the value of the complete maintenance service available to them through SKF's Distributor Organization.

Whatever your product, your engineers and designers can have this helpful SKF teamwork simply by asking for it. 7286

SKF-equipped E. D. Jones & Sons Company "Pulp-Master."

SKF-equipped Carthage Machine Company Multiple Knife Chipper.



SKF

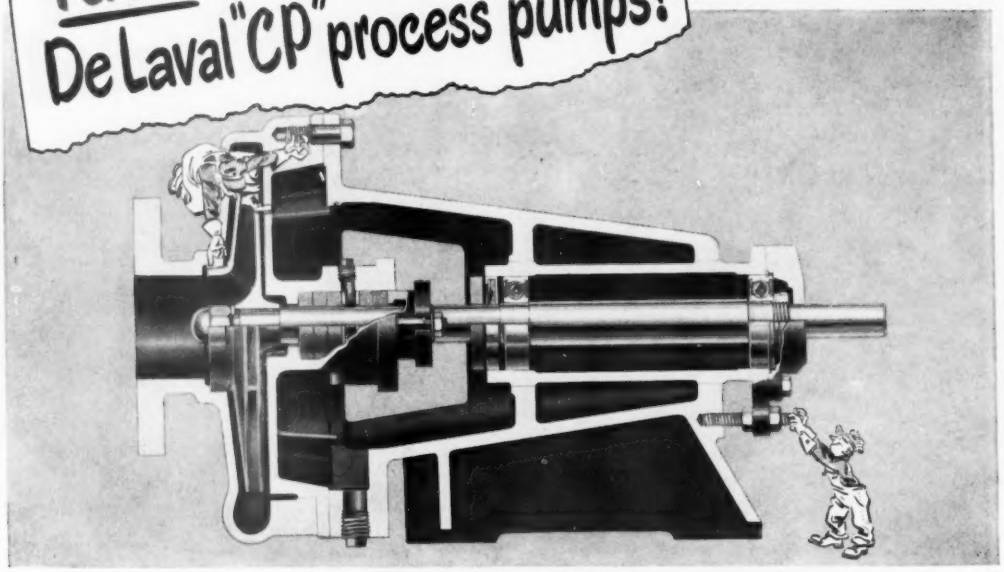
BALL AND ROLLER BEARINGS

8 REASONS WHY SKF IS PREFERRED BY ALL INDUSTRY

integrity • craftsmanship • metallurgy
tolerance control • surface finish
product uniformity • engineering service
field service

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.—*manufacturers of* SKF *and* HESS-BRIGHT *bearings.*

Facts you should know about De Laval "CP" process pumps!



We put eductor vanes on the back of open impellers!

Why? Because the eductor vanes develop higher pressures than the pumping vanes. This reduces end thrust, relieves stuffing box pressure, keeps the back of the impeller clean and prevents binding . . . all important points that insure better operation and less maintenance.

NOW! You can adjust a pump for wear without opening it up!

How? It's easy if you have a De Laval CP pump. The secret is in the tapered wearing ring. This means you don't have to replace the wearing ring to restore the pump to its original efficiency. All you do is turn this external adjusting screw. This moves the entire rotor and impeller forward and permits you to adjust for proper clearance between the case and wearing ring . . . *it's as simple as that.*

DE LAVAL STEAM TURBINE CO., TRENTON 2, N. J.

TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

50th DE LAVAL Anniversary

CPP-6

Early Paris post office. Illustration from Bettmann Archive.

Paper, Printing and the Postal Service

Older than paper, far older than printing is the idea of a postal service. It began in primitive Persia, flourished in ancient Rome. Even through the "Dark Ages," Merchant Guilds carried it on. But a King of France, Louis XIV, in 1653 first extended postal service to the individual. For a sou, the Paris post office would deliver a letter to your private abode

In America the postal service is inseparably associated with the name and fame of Benjamin Franklin. Under British rule he served 16 years as Deputy and 21 as Postmaster for the Colonies, then in 1775 became the first Postmaster General appointed by the Continental Congress.

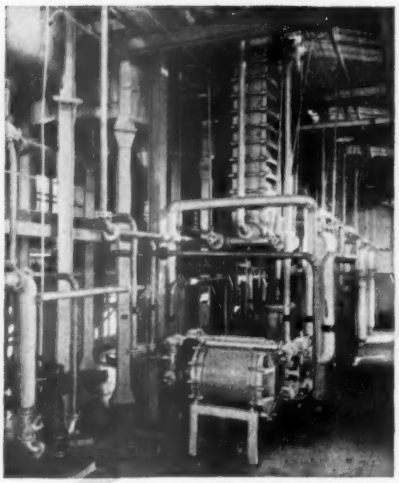
Once hand written letters largely made up the contents of the carrier's pouch. But the coming of plentiful paper and the advancement of printing changed everything. Today the United States Post Office handles more than four billion pounds of printed matter, letters and cards each year, as well as seven billion pounds of merchandise wrapped in paper and paper board. Paper, printing and the postal service work together in providing and stimulating the life blood of progress. Supplying those billions of pounds of paper in such infinite variety of purposes is one of the great achievements of the pulp and paper industry.

The dramatic story of paper is told in the sound-and-color film, "Paper—Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

KENWOOD WOOL PRODUCTS HUYCK *Felts*

F. C. HUYCK & SONS • *Kenwood Mills* • RENSSELAER, N. Y.

Pacific Coast Representative: Pacific Coast Supply Co., Public Service Building, Portland, Ore.; 343 Sansome St., San Francisco, Calif.



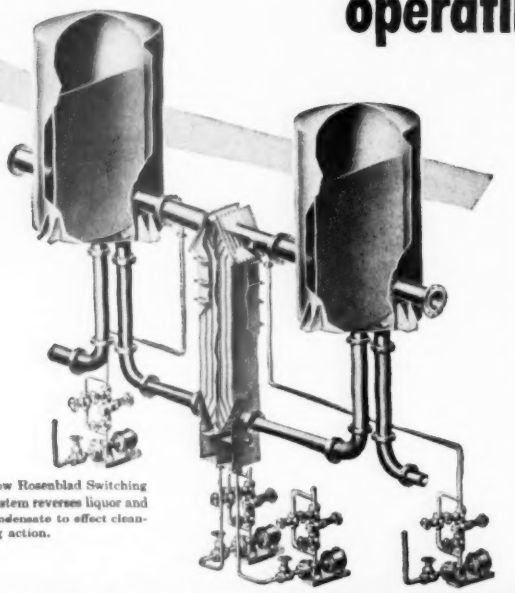
Scandinavian Evaporator installation with Rosenblad* Channel Switching System.

*Patents Applied For

Commercial Installations on Order!

CONKEY FLAT PLATE HEATING SURFACE EVAPORATOR WITH

Rosenblad Switching System operating successfully



How Rosenblad Switching System reverses liquor and condensate to effect cleaning action.

The Rosenblad Switching System for concentrating sulphite pulp mill waste liquors has been proven in commercial operation—in numerous pulp mills in Scandinavia, some of them in operation over a number of years. These proven installations are now being duplicated in this country by General American. In all of these installations, shut down time and scale removal costs have been eliminated by a condensate wash de-scaling operation carried on during full capacity operation of the evaporator. Surfaces subjected to boiling liquor are periodically switched with those in contact with vapor and condensate to clean heating surfaces during normal continuous operation. All parts of equipment are switched, washing away scale with condensate from pipe lines, valves, vessels—in addition to heating surface. ***Write for Bulletin.***

GENERAL AMERICAN TRANSPORTATION CORPORATION

PROCESS EQUIPMENT DIVISION

Sales Offices: 10 East 49th Street, New York 17, New York

General Offices: 135 South LaSalle Street, Chicago 90, Illinois

PROCESS EQUIPMENT DIVISION GENERAL AMERICAN TRADE MARK

Sole licensee in the U. S. A. for the A. B. Rosenblads Patenter Evaporator Switching System.

OFFICES IN PRINCIPAL CITIES

Other General American Equipment: Turbo-Mixers, Evaporators, Thickeners, Dewaterers, Dryers, Towers, Tanks, Bins, Kilns, Pressure Vessels

GET MORE HORSEPOWER PER CHAIN DOLLAR

Other REX Mill Chain Favorites

Rex H-Type Conveyor Chain

Rex Combination and Duraber Chain

Rex Refuse and Log Haul Chain

Baldwin-Rex Roller Chain

Rex Chabelco Steel Chain is ideal for mill drive service. Since most mill drives operate under heavy loads at low to moderate speeds, Rex Chabelco delivers more horsepower for each dollar of investment. Here's why:

First, for equivalent load, Rex Chabelco Chains and Sprockets are lower in original cost than other types of driving medium. Often a single strand Chabelco Chain will handle loads that require multiple strands in other types of drives.

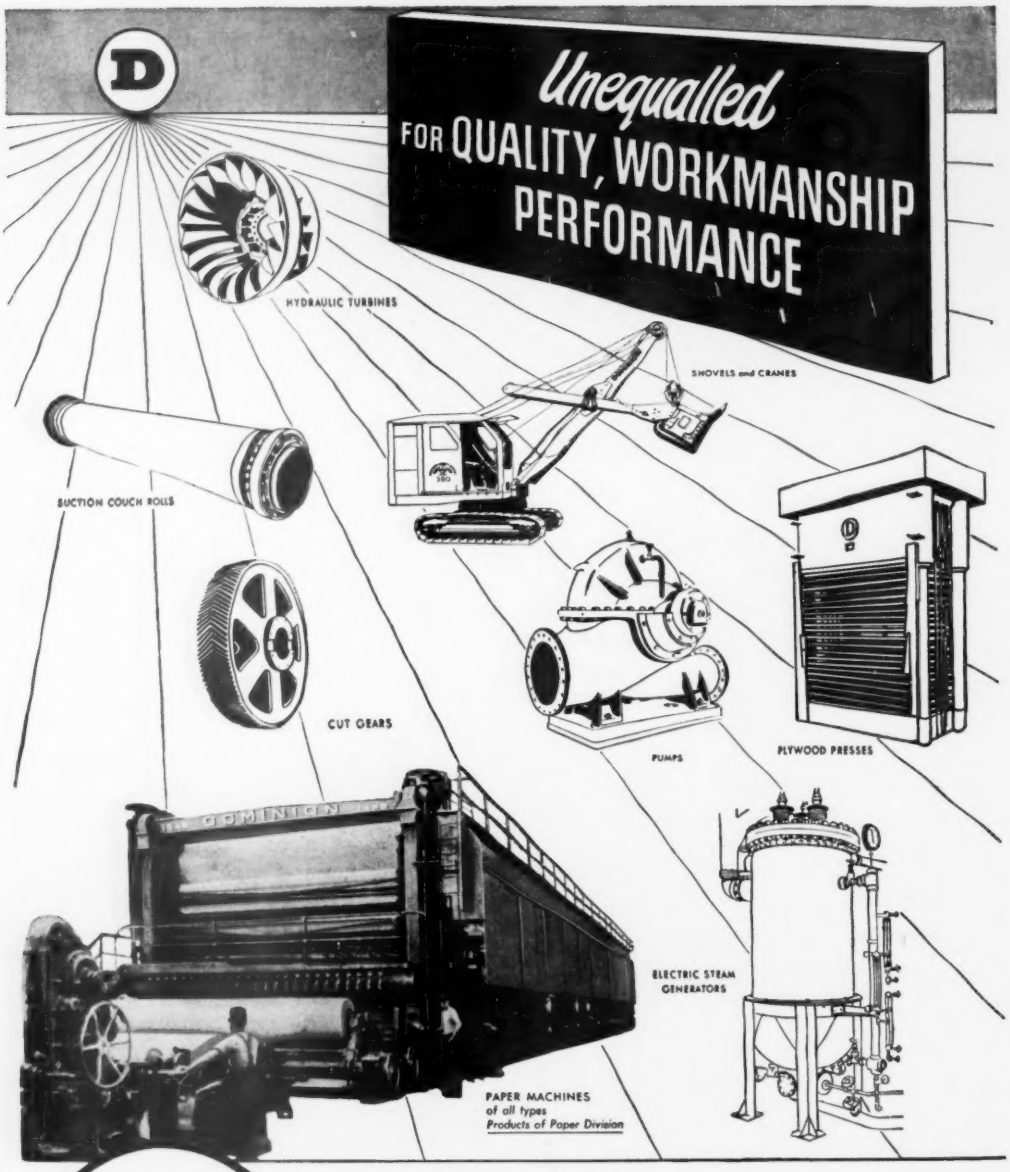
Second, Rex Chabelco is lowest in overall operating cost and assures the longest overall drive life. It is a precision-built chain made of high carbon or alloy steel, heat treated for high strength and durability. Clearances are built in between chain parts, permitting exposed operation under severe conditions. Dust and dirt are far less likely to build up between chain parts and cause "freeze-ups." Heavy shock loads are easily accommodated. Maintenance is simpler . . . more economical.

Rex Chabelco Chains come in a wide variety of sizes and strengths. They are frequently used to replace cast chains of equivalent size where greater strength is necessary. They can often operate over the same sprockets as equivalent size cast chain.

Rex Chabelco Chain Drives are *easy* to select. For information, ask your local Rex Field Sales Engineer, or write to Chain Belt Company, 1691 W. Bruce Street, Milwaukee 4, Wis.

CHAIN BELT REX COMPANY ®

CHAINS AND SPROCKETS



built by

DOMINION ENGINEERING
COMPANY LIMITED

MONTREAL · TORONTO · WINNIPEG · VANCOUVER

DYESTUFFS FOR BOARDS

You can put new life into your boards with color. Whatever the hue or degree of fastness, there are GENERAL dyestuffs to match the shade. Our technical field service is ready to help you obtain any color you want—clear, bright, fast shades of bristol, decorative boxboard or container board. Take advantage of our quick color matching service—formulas forwarded to you the same day we receive your request.

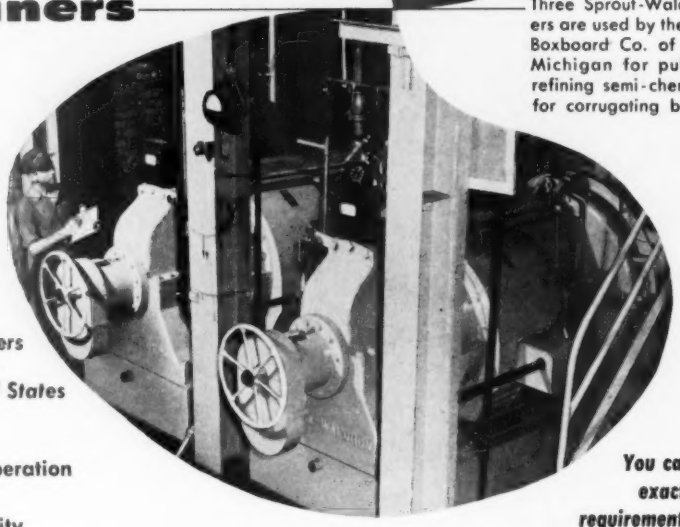
GENERAL DYESTUFF CORPORATION

to solve refining problems economically—

American Boxboard uses

Sprout-Waldron Refiners

Three Sprout-Waldron refiners are used by the American Boxboard Co. of Filer City, Michigan for pulping and refining semi-chemical chips for corrugating board pulp.



Here's why S-W Refiners are preferred by mills throughout the United States and Canada:

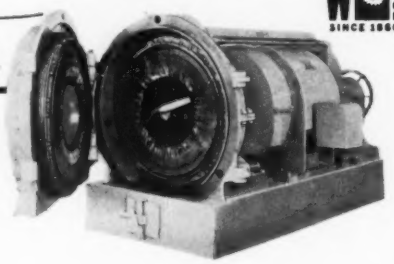
- Flexibility of operation
- High capacity
- High pulp quality
- Ease of feeding
- Low capital investment per ton of pulp
- Low maintenance costs
- Low plate cost per ton of pulp

You can pinpoint exact pulp test requirements with the Sprout-Waldron Refiner.

√ List of Applications

√ Semi-chemical Pulping (Bleached-Unbleached)
√ Pre-Refining—High Yield hot brown stock
√ Kraft—Groundwood—Sulphite Knots & Screenings
√ Secondary Refining of Asplund Stock
√ Insulation Board Stock
√ Hardboard Stock
√ Flooring Felt
√ Special Applications

The Sprout-Waldron 36-2 Refiner is *the foremost producer of semi-chemical pulp today*



Send for your copies of Better Fibers, a factual file on successful semi-chemical pulping operations. Write Sprout-Waldron & Co., Inc., 32 Waldron St., Muncy, Pa.

Sprout-Waldron
Manufacturing Engineers
MUNCY • PENNSYLVANIA

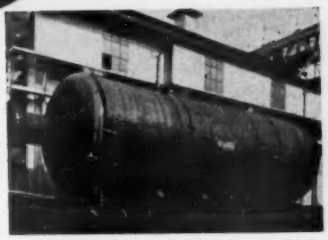
170

Interior of Lukens Inconel-Clad Steel digester, manufactured for Crossett Paper Mills by Wyatt Metal & Boiler Works, P. O. Box 3052, Houston 1, Texas.

Inconel

PROMISES INCREASED DIGESTER LIFE

. . . at Crossett Paper Mills



Completed digester tied to flat car on which it travelled from Texas to Arkansas.

There was trouble at Crossett Paper Mills in Crossett, Arkansas.

For some unexplained reason, corrosion caused their mild steel digesters to fail after as little as four years. Previously digesters had lasted as long as twenty years.

After testing several materials, Crossett turned to Inconel. Corrosion tests with this alloy had proved it is highly resistant to both corrosion and stress corrosion cracking in both white sulphate cooking liquor or mixtures of white and black liquors.

What's more, Inconel's coefficient of expansion is similar to that of steel. This is a big advantage where short cooking cycles cause frequent expansion and contraction of the digester.

Right now, it is a little early to make any long-range estimates on how long Inconel will last. But, every indication points to the fact that Inconel is a solution to the problem of digester corrosion.

Test Results: Here is how Inconel and steel compare in corrosion resistance under actual operating conditions.

CORROSION TEST IN SULFATE COOKING LIQUOR	
Temperature	300° F. avg.
Liquor Velocity	4 ft./sec.
Duration of Test	35 days

Material	Corrosion Rate	
	mdd.	ipy
Inconel	1.8	0.0003
Mild Steel	420	.077

3 TYPES OF INCONEL INSTALLATION

1. New digesters fabricated from Lukens Inconel-Clad Steel.
2. Plant-installed lining of Inconel sheet or strip for existing digesters.
3. New Inconel-lined digesters.

A new booklet, "Corrosion and Field Lining of Sulphate Digesters," contains data on the corrosion of metals and alloys in sulphate digesters as well as methods of fabrication. Write for your free copy today.

Right now, much of Inconel's production is being diverted to defense. But, if you have a special problem in metal selection or corrosion, write Inco's Corrosion Engineering Section.

EMBLEM OF SERVICE INCO

THE INTERNATIONAL NICKEL COMPANY, INC.

67 Wall Street, New York 5, N. Y.

Inconel... FOR LONGER LIFE

Bingham

PRECISION BUILT FIELD PROVEN PUMPS

Pulp-Hog

A stock pump that will not become

Airbound

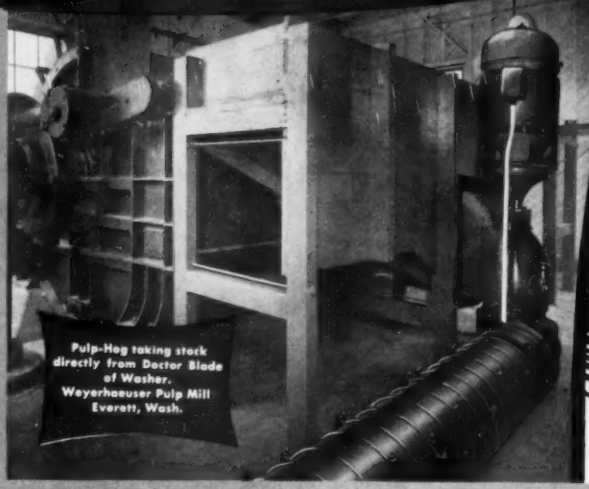
The Bingham "PULP-HOG" can be mounted on the side wall of Deckers, Washers, and Thickeners and take stock directly from the Doctor Blade without becoming airbound or clogged. The unique design of this pump enables the "PULP-HOG" to receive stock, separate out, and expel the entrained air and deliver at a constant rate into the mill system—no flow interruption.

• • •

Bingham "PULP-HOGS" are being used effectively in the Pulp and Paper industry for handling air entrained pulp from *Stock Flow Meters, Consistency Regulators, Save-Alls, Pulp Refiners, Knotters, Beaters, Washers, Deckers, and Thickeners.*

• • •

An important factor in Bingham precision built pumps is the static and dynamic balancing of all impellers and rotating parts by means of Gisholt Dynetric balancing equipment shown (right). This is typical of the precision machinery in our new, modern plant.



Pulp-Hog taking stock directly from Doctor Blade of Washer. Weyerhaeuser Pulp Mill Everett, Wash.

Gisholt Dynetric Balancer in our new and modern plant.

SEND NOW for Pulp-Hog Folder 26

Tells why so many pulp and paper mills throughout the U. S. and Canada are using Bingham PULP-HOGS. Write, write, or phone the Bingham Pump Sales and Service office nearest you.

Bingham DOUBLE VOLUTE RADIAL BALANCE PUMPS SINCE 1921

GENERAL OFFICES:
705 S.E. Main Street
Portland, Oregon

FACTORIES:
Portland, Oregon
Vancouver, Canada

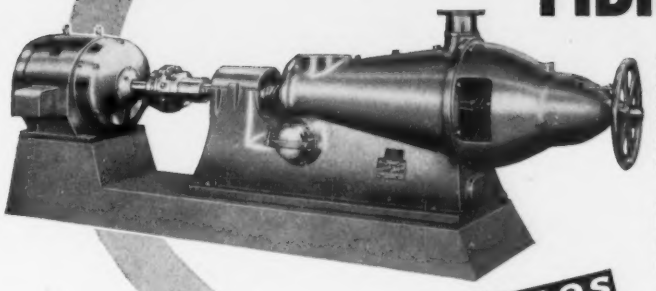
Sales and Service Offices: BOSTON, MASS., 113 Broad Street • CHICAGO, ILL., 275 Old Colony Bldg., 407 South Dearborn Street • HOUSTON, TEX., 1206 Union National Bank Bldg. • MIDDLETON, OHIO, 505 Federal Savings & Loan Bldg. • NEW YORK CITY, N. Y., 611 Graybar Bldg., 420 Lexington Ave. • PITTSBURGH, PENN., 102 Mt. Lebanon Blvd. • SAN FRANCISCO, CALIF., 270 Fremont St. • SEATTLE, WASH., 316 Joseph Vance Bldg., 1402 Third Ave. • ST. LOUIS, MO., 2533 Salem • ST. PAUL, MINN., 205 South Robert St. • TULSA, OKLA., 200-206 N. Denver St. • VANCOUVER, CANADA, 3550 E. Broadway.

MORE THAN TWICE THE

TONNAGE

ED Jones

FIBREMASTER®



This "big brother" to the famous Jones High-Speed Refiner has all the features of the smaller unit: flexibility, improved stock control, economy of power and maintenance costs... PLUS more than twice the tonnage.

Its rugged simplicity of design, high efficiency and low operating cost have brought immediate recognition as a worthy member of the Jones "family" of quality stock preparation machines.

Ask your Jones representative to tell you more about it — or write us direct for details.

ED Jones

E. D. JONES and SONS COMPANY • PITTSFIELD, MASSACHUSETTS

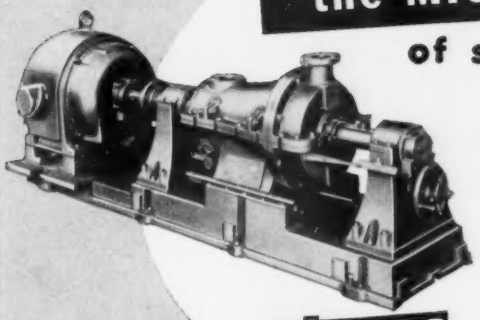
BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

ED Jones

Still

"the MIGHTY MITE"

of stock preparation



In mill after mill, the Jones High-Speed Refiner is being used as a highly versatile general utility unit . . . refining stock for high-quality ledger paper; defibering over-issue news; clearing flakes from coated book broke.

And in case after case, the report comes back: "improved stock—better control—drastic reduction in operating horsepower requirements — lowered maintenance costs."

This explains why over 900 units have been sold (not counting those by imitators!) since its introduction. Your Jones representative will tell you more about it — or write for Bulletin 1011-B.

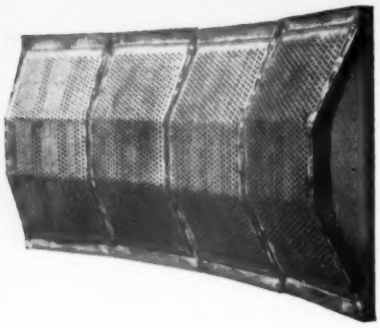
ED Jones

HIGH-SPEED REFINER

E. D. JONES and SONS COMPANY • PITTSFIELD, MASSACHUSETTS

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

ESCO Circulating



Systems and Parts

ESCO engineering staff is available for consultation on problems of circulation. Your inquiries are invited.

ESCO STAINLESS AND HIGH ALLOY STEELS

ELECTRIC STEEL FOUNDRY

2166 N. W. 25th Avenue, Portland 10, Oregon

Sales Offices and Warehouses

CHICAGO, ILLINOIS — NEW YORK CITY, NEW YORK
HONOLULU, T. H. — SAN FRANCISCO, CALIFORNIA
HOUSTON, TEXAS — SEATTLE, WASHINGTON
LOS ANGELES, CALIFORNIA — SPOKANE, WASHINGTON
EUGENE, OREGON — MEDFORD, OREGON

IN CANADA — LIMITED, VANCOUVER, B. C.

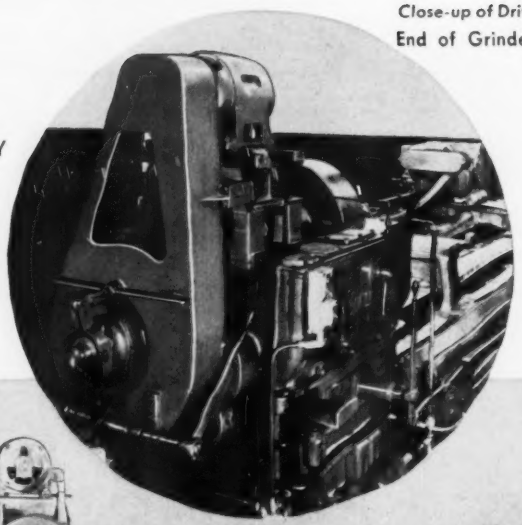
ESCO

LOBDELL GHV ROLL GRINDER

at

ST. REGIS PAPER COMPANY
TACOMA - WASHINGTON

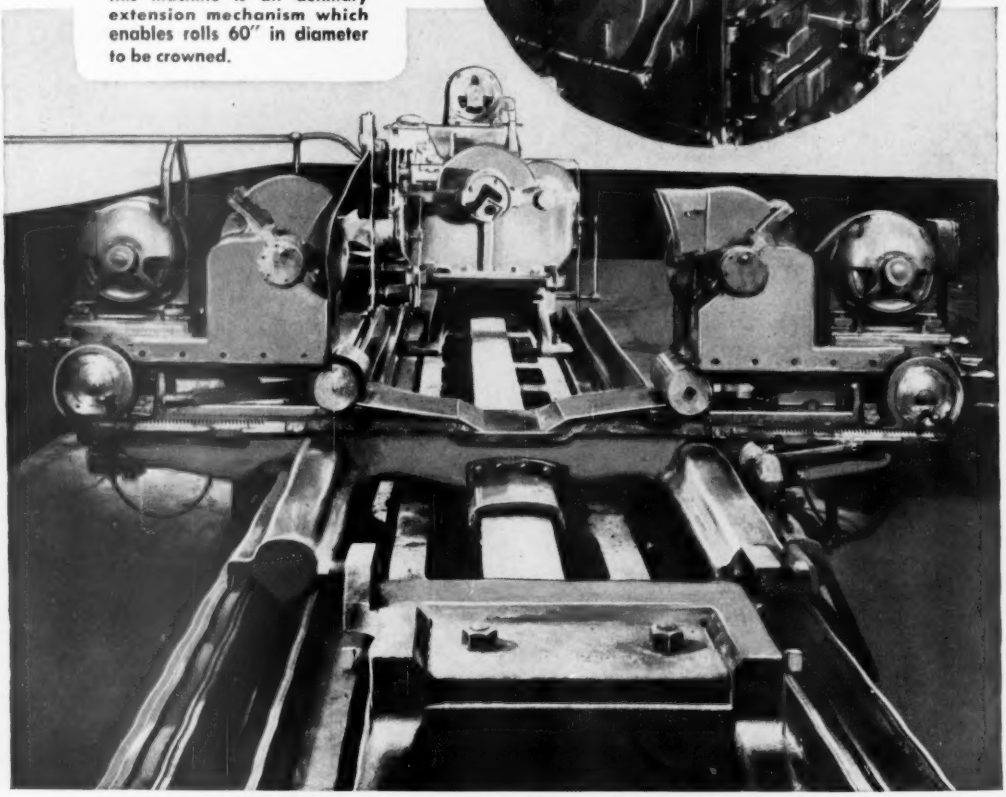
Close-up of Drive End of Grinder.



No. 5 GHV Lobdell Roll Grinder, with a roll size capacity of 8" to 44" diameter and 270" face.

Was installed in 1949.

Not shown, but supplied with this machine is an auxiliary extension mechanism which enables rolls 60" in diameter to be crowned.



LOBDELL UNITED COMPANY

1836 WILMINGTON 99, DELAWARE 1951

A SUBSIDIARY OF UNITED ENGINEERING AND FOUNDRY COMPANY

Remember this character?

Just four years ago a Moore & White advertisement announced, with pardonable pride, that this old company had completed its rejuvenation. The ad bore the caption "Humpty Dumpty has been re-assembled," and included a portrait of that gentleman in the pink, as shown above.

Shortly thereafter, so help us, we received a telephone call from a man who asked to speak to "Humpty Dumpty." Humpty Dumpty, in the person of an M&W sales engineer, waited upon this prospect forthwith. Took the measure of his needs and distress, and saw to the prompt designing, fabrication, and delivery of $300,000 worth of Moore & White equipment. This customer, one of the nation's biggest paper-makers, has looked to Moore & White for his machinery needs ever since.

He is included in a roster of customers which has doubled in those four years. We have supplied equipment—from minor parts to complete assemblies—to nearly half the manufacturers of paper and paperboard in the country. Moore & White is a bigger factor in the industry than it has ever been before.

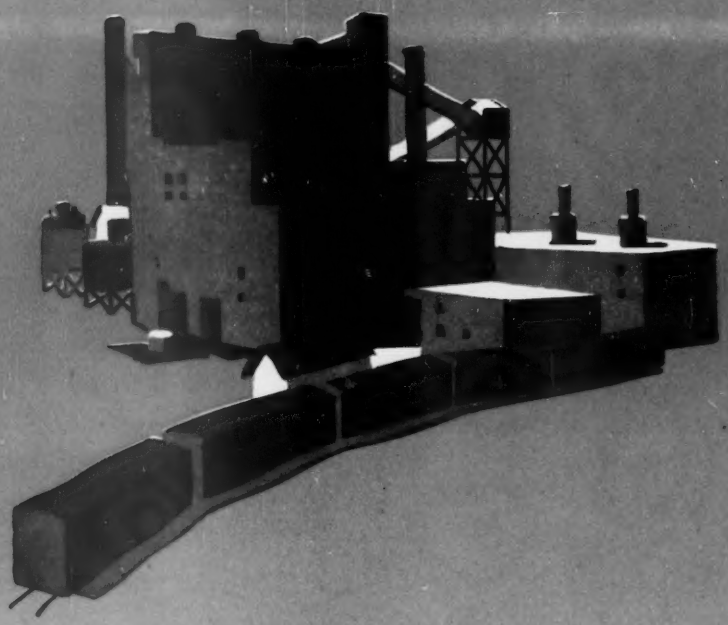
This commendable state of affairs can only stem from well-earned confidence in this revitalized company, throughout the paper-making industry. Confidence not only in the quality of Moore & White products, but in our ability and willingness to help solve today's knotty production problems. Humpty Dumpty is ready to hop to it when *your* call comes in!

The MOORE & WHITE Company

15TH STREET AND LEHIGH AVENUE • PHILADELPHIA 32, PA.

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

Represented on the West Coast by Dan E. Charles Agency, 618 Jones Bldg., 1331 Third Ave., Seattle 1, Wash.



OUTSTANDING WESTERN SOURCE

Puget Sound Pulp and Timber Company is a large producer of bleached sulphite wood pulp, with a daily capacity of three hundred and seventy-five tons of this product.

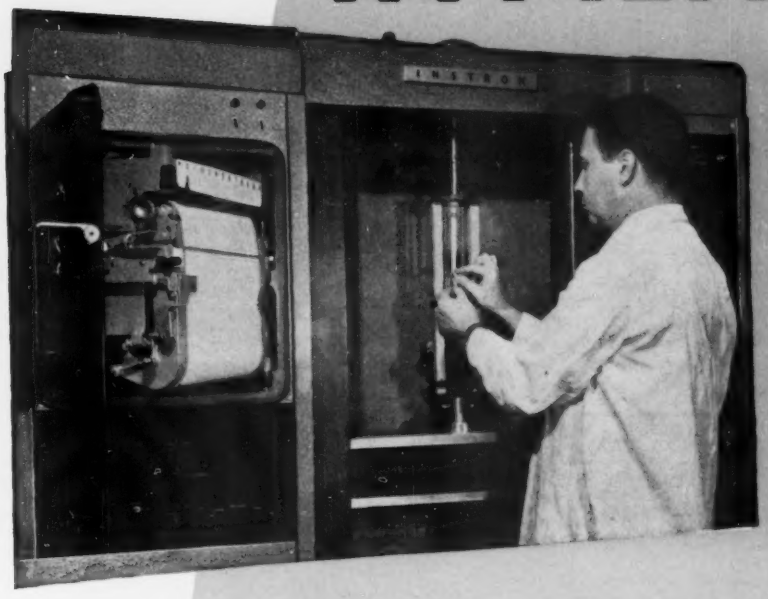
PUGET SOUND

PULP AND TIMBER COMPANY

BELLINGHAM • WASHINGTON

NOW... High Wet-Strength with

KYMENE



Kymene 138, formerly called Resin 138, and Kymene 234 are firmly established as superior low-cost wet-strength resins for use in all types of wet-strength papers and paperboard—both in the stock system and for surface applications.

These strongly cationic resins are in solution, ready to use. They may be diluted with water to any desired concentration. No acid additions or aging periods are needed before using. Alum is not required.

The effectiveness of Kymenes is demonstrated at Hercules' laboratories by the Instron, shown above. This highly sensitive equipment measures wet and dry tensile strength, and other important properties of wet-strength papers.

Write for technical data and sample.

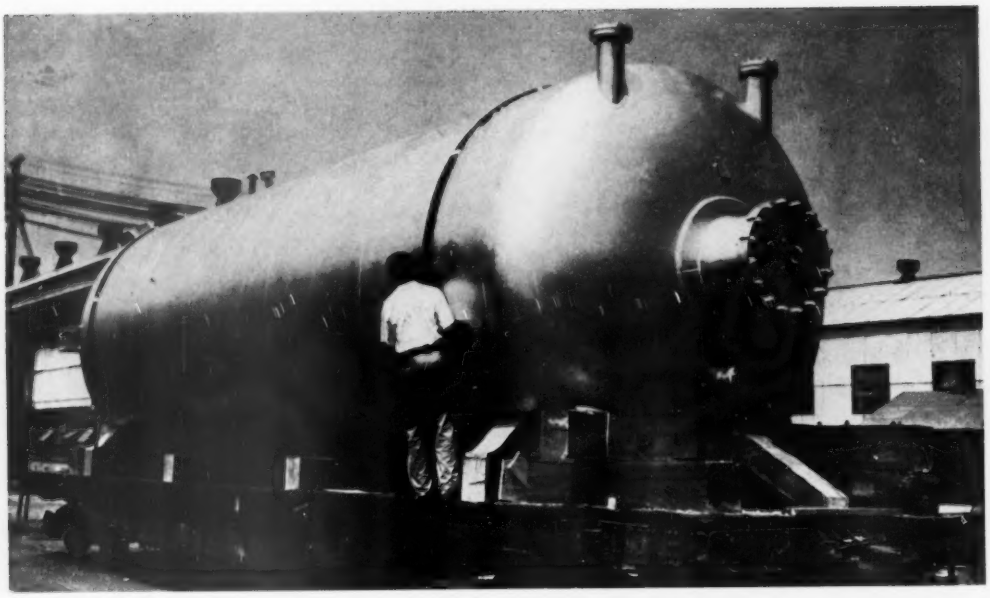
HERCULES POWDER COMPANY
INCORPORATED

Paper Makers Chemical Dept., 965 King Street, Wilmington, Delaware

SIZING MATERIALS AND CHEMICALS FOR PAPER

"KYMENE" IS A HERCULES TRADEMARK

PP51-6



SHIPMENT BY RAIL OR WATER

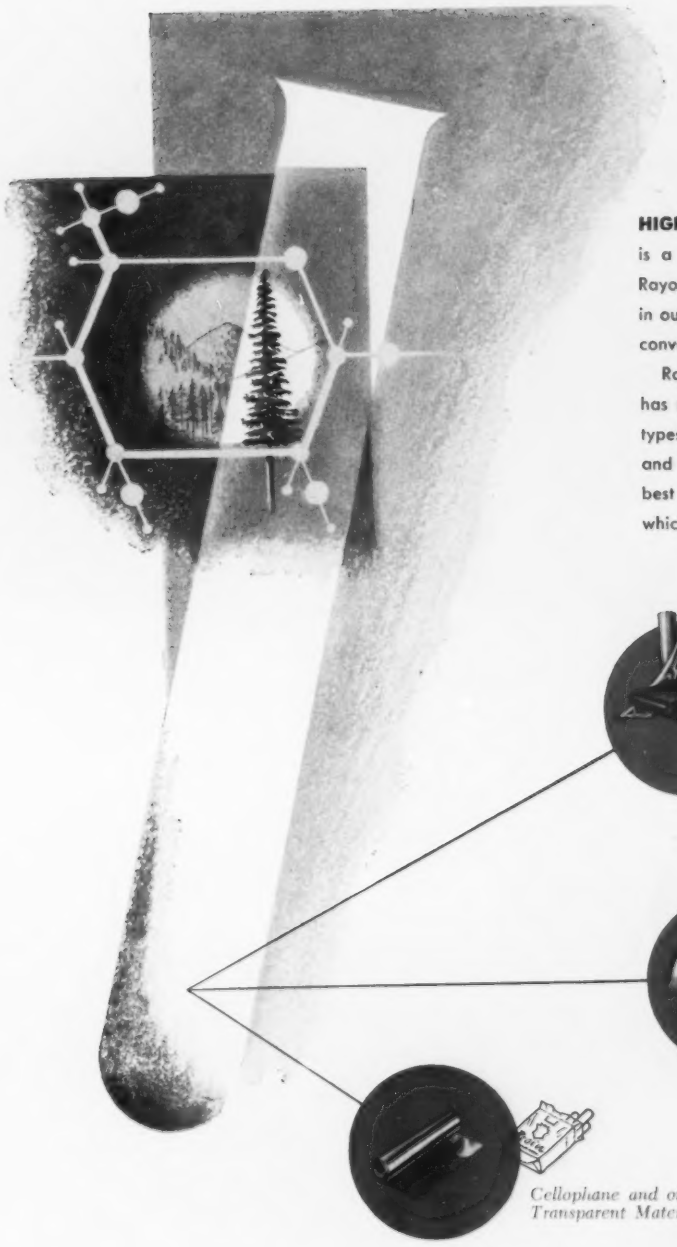
A portion of the recent production of equipment for pulp and paper mills at Newport News has included the digester above and the flow tank on the right.

The flow tank was delivered by use of the deep water facilities at Newport News, while the digester was shipped by direct rail transportation. Shipment was expedited in both instances by use of these facilities.

NEWPORT NEWS

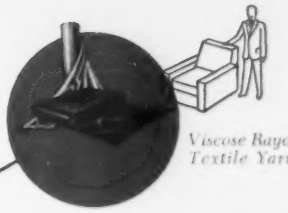
SHIPBUILDING AND DRY DOCK COMPANY

Newport News, Virginia



HIGHLY PURIFIED WOOD CELLULOSE is a chemical raw material produced by Rayonier by chemically processing wood in our mills. It is used by our customers for conversion to a variety of useful products.

Rayonier research over a period of years has resulted in development of specialized types of wood cellulose, each with physical and chemical characteristics which assure best results in making the end products for which it is used.



Viscose Rayon and Acetate Textile Yarns and Fiber

Tire Cord and Fabric

Cellophane and other Transparent Materials

RAYONIER
INCORPORATED

PRODUCERS OF HIGHLY PURIFIED WOOD CELLULOSE FOR TEXTILES, TIRE CORD, CELLOPHANE, PLASTICS

EXECUTIVE OFFICES: *122 East 42nd Street, New York 17, N.Y.*
MILLS: *Hoquiam, Port Angeles, Shelton, Washington; Fernandina, Florida*

LINK-BELT Silverstreak Silent Chain Drives

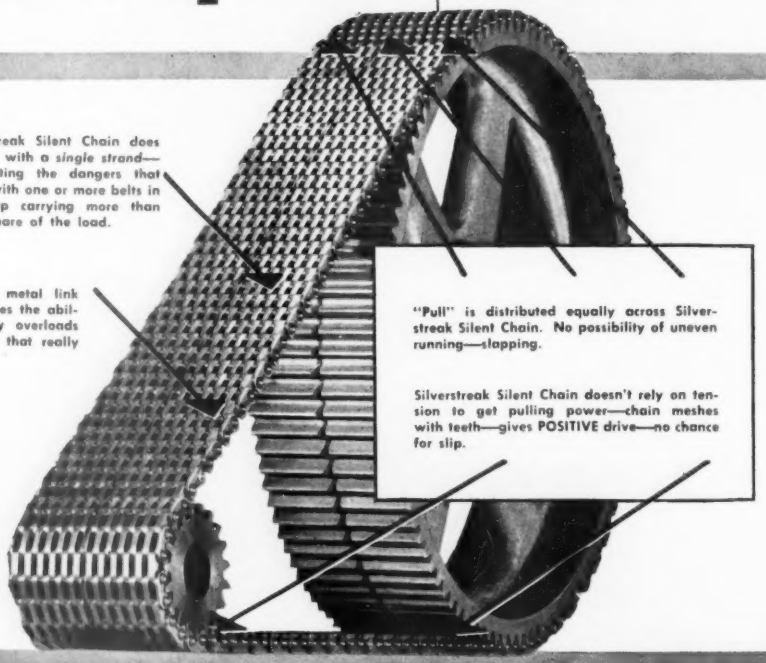
deliver full-rated hp

Slip-proof
Slap-proof
Shock-proof

There's no stretch, no slippage with Link-Belt Silverstreak Silent Chain Drives. You're sure of *positive* transmission of every unit of horsepower your motors develop. For every rating, every design has been proven 98.2% efficient.

You conserve space, too—Silverstreaks operate efficiently on extremely short centers. Ratios as high as 10-to-1 are commonly used.

For high speeds—for tough operating conditions—for years and years of trouble-free service—you can't beat Link-Belt Silverstreak Silent Chain Drives.



Silverstreak Silent Chain does the job with a *single strand*—eliminating the dangers that come with one or more belts in a group carrying more than their share of the load.

Husky Silverstreak metal link construction combines the ability to carry heavy overloads with the resilience that really absorbs shock.

"Pull" is distributed equally across Silverstreak Silent Chain. No possibility of uneven running—slapping.

Silverstreak Silent Chain doesn't rely on tension to get pulling power—chain meshes with teeth—gives POSITIVE drive—no chance for slip.

LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa). Offices Factory Branch Stores and Distributors in principal cities.

12,289

When You Cut Paper with

SIMONDS

MIRROR-FINISH

KNIVES

Yes—SIMONDS "Red Streak" Knives have a super-smooth finish on the all-important *face side* . . . a gleaming, mirror-like surface that runs right up from the razor-sharp cutting edge. It's this polished, lustrous finish produced on massive vibration-free machines, *plus* exactly the right face taper, that eliminates drag against stock, reduces knife strain, assures freer, cleaner cuts.

What's more, these knives are made to rigid, high standards of uniformity and accuracy, not only in thickness but in straightness of cutting edge, end to end. Made of Simonds own S-301 Steel, you can bank on "Red Streak" Knives for straighter, smoother cuts, for more cuts between grinds, for long, trouble-free service. Buy through your Simonds dealer.

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

Branch Offices in Boston, Chicago, San Francisco, and Portland, Ore. Canadian Factory in Montreal, Que.

ROARING SPRING IMPROVEMENT

MANAGEMENT TAKES ADVANTAGE OF MISFORTUNE

VIEW OF D. M. BARE PAPER CO., of Roaring Spring, Pa., Division of Combined Locks Paper Co., whose engineers and entire staff have rapidly and efficiently got the paper mill back into production after an accident which shut down operations in late May. As so often happens, misfortune may ultimately lead to greater benefits—new refining equipment has been installed and the company is considering changing over to kraft from soda pulp, with greater capacity.

The D. M. Bare Paper Co., of Roaring Spring, in southwest Pennsylvania, suffered an accident last May which got wide publicity, but little is known and nothing publicized through the industry about the efficient and rapid way in which the entire management and staff of the company got back into production on Tuesday, Aug. 21. Not only is the mill making its machine-finished book paper, lithograph, bond and other products, but as a result of its misfortune, it is making substantial improvements.

The accident was a digester explosion on May 24. Only the paper mill, and not the pulp mill, is back in production. But, turning bad luck to advantage, the company has undertaken studies to convert the entire process over from soda pulp to an improved kraft process, as other modern mills have done, and possibly to increase its pulp producing capacity from 80 tons a day to some substantially higher figure.

Before the paper mill, with its three Fourdriniers—74, 85 and 86 inch widths (trim, 65, 70 and 76)—could be brought into production again, it was necessary to rearrange the entire mill to handle all lapped pulp instead of the slush pulp for which it was originally set up. This was because pulp had to come from outside sources.

The management seized upon this problem to find ways of improvement, and as a result the Roaring Spring mill now has a Hydrapulper and additional new continuous refining equipment.

Raymond P. Fischer is chairman and G. D. Muggleton is president of the D. M. Bare company and they also are top officers of the Combined Locks company in Wisconsin. Jermain B. Porter is vice president and general manager at Roaring Springs.

G. D. MUGGLETON (left) is President of D. M. Bare Co., and also a top official of Combined Locks Co. in Wisconsin, of which the Roaring Spring, Pa., mill is a division.

Carroll Daughter Serves

Second Lieut. Sue Carroll, daughter of Glenn Carroll, purchasing agent of Combined Locks Paper Co., Combined Locks, Wis., recently left for Fort Sam Houston, El Paso, Tex., to serve with Army Special Medical Services in occupational therapy. She is one of 5 daughters and one son of Glenn and Dorothy Carroll.

Northern's Machine Sets a Record

The new Beloit Yankee Fourdrinier 172-inch creped tissue machine which started up Apr. 14 set a record to date of 65½ tons of 12½ lb. Northern tissue on Sept. 6 at Northern Paper Mills, Green Bay, Wis. This is Northern's No. 5 and its second new machine in 2½ years. It is the 4th new tissue machine for three Green Bay mills in that time.

ECA SAYS NO FUNDS FOR BOWATER

Application by the Bowater Paper Co. for a certificate of necessity to build a newsprint mill in the South has aroused considerable speculation and opposition in some industry quarters in the area. The Bowater company maintains sales offices at 250 Park Ave., New York City, and operates a 1,000-ton-a-day newsprint mill at Corner Brook, Newfoundland, under the name of Bowater's Newfoundland Pulp & Paper Mills, Ltd.

Opposition stemmed from the apprehension that the plant would be built with ECA funds through a reported grant of twenty million pounds to the British corporation for the project by the House of Commons.

Pulp and paper division officials in ECA pointed out to PULP & PAPER that it would be impossible for its funds to be so used because (1) ECA funds may be spent for plant construction only within the participating country; and (2) England, at her own request, is not a participant in the program this year. The British Embassy in Washington through a cable to London confirmed denial of any assistance by the British government to the Bowater project.

Reports from the South indicate that Sir Eric Bowater, chairman of the board of the British corporation, as well as officials of the Canadian company and the New York sales office, visited a proposed mill site several months ago in Choctaw county, Alabama, southeast of Meridian, Miss. This site lies in a heavy timber belt and is one that has been well examined over the past few years by at least five major companies. Other sites also examined by Bowater were near Knoxville, and Cleveland, Tenn. Bowater officials who confirmed their interest and application for a certificate of necessity indicated that a Tennessee site was preferred.

NEWS IN BRIEF • • • AND BULLETINS

SCOTT—SOUNDVIEW DISCUSS MERGER

A proposed merger of Scott Paper Co. and Soundview Pulp Co. has been discussed and if directors approve the proposal the plan will be presented to stockholders for decision. The basis of merger proposes issuance of 1,220,625 common shares of Scott stock in exchange for 976,500 shares of Soundview common stock. A joint announcement by the companies adds that the merger would provide Scott with a site for a West Coast paper mill with the economic advantage of integrating raw material production with manufacture of finished products.

WORK BEGINS ON JACKSONVILLE MILL

Construction has begun on the model new kraft paper mill for multiwall bag stock being built by St. Regis Paper Co. at Jacksonville, Florida. Justin H. McCarthy, veteran engineer in Canada, the Northeast and Far West, long with Hardy Ferguson, who built the Tacoma mill for St. Regis, is chief engineer. John McDermott, former superintendent for St. Regis in northern New York and now at Tacoma, Wash., has been consultant and associate with Mr. McCarthy at the Jacksonville site on the paper mill layout.

NEW DE-INKING MILL GOES INTO PRODUCTION

A new $2,000,000 Gary, Ind., mill is turning out 26 tons of reprocessed newsprint paper a day for the 11 newspapers that own it. Executives of Gary Paper Mills, Inc., say it is the only mill in the country using cold water to remove ink from old paper, soak it into pulp and make it into paper again. Though the reprocessed newsprint costs $175 a ton—much more than Canadian newsprint—newspapers are glad to get it . . . . . .

CONSTRUCTION AT EVERETT, WASH., BEGINS

Work has begun on what will be Everett, Wash.'s fourth mill and its third market pulp mill, making that city one of the great industry centers of the world. Footings are in, concrete poured for foundations and other building by L. H. Hoffman Co. of Portland, Ore., for the new $20,000,000 250-ton bleached kraft market pulp mill of Weyerhaeuser Timber Co., this one to be in north of town on the Snohomish River next to one of its sawmills. R. J. LeRoux, manager of the sulfite mill for Weyerhaeuser in Everett, is in charge, reporting to Howard Morgan of Tacoma, who heads the pulp division. Gerald F. Alcorn, now serving as construction engineer in Longview for another new mill which will double Weyerhaeuser kraft board production there, is also construction engineer for the Everett job. Hydraulic log barkers are to be installed in four sawmills in and near Everett to serve the new mill with fir and other slabs and edgings. It will also be equipped to make dissolving kraft pulp for explosives. It is to be completed by July 1953 . . . . . .

WORK GOING AHEAD ON LONGVIEW MILL

While Weyerhaeuser has started building its second Everett mill, work is being pushed forward on the new bleached kraft board mill it is building at Longview, Wash., where Gerald F. Alcorn is construction engineer and Dr. Ray Baker resident manager. A Beloit 216-in. machine, Hansel hydraulic barker, Combustion Engineering power boilers, Babcock & Wilcox recovery unit, General American evaporator, Dorr causticizing, four stainless clad digesters, Noble & Wood continuous beaters, E. D. Jones Majestic jordans and Impco brown stock washers and Impco three-stage bleach are principal units. This mill is to be completed in early 1952 . . . . . .

GAYLORD ACQUIRING TWO OHIO MILLS

A merger is under way between Fairfield Paper & Container Co., with plants in Baltimore, Ohio, and Beaver Falls, Pa., The Dresden Paper Mills Co., Dresden, Ohio, and Gaylord Container Corp. of St. Louis, with its big mill at Bogalusa, La. C. W. Gaylord, president of Gaylord, and M. D. Custer, president and treasurer of the Ohio companies, announced it. The transaction will add two paper mills and two container plants to the Gaylord operations. Gaylord also has 14 conversion plants throughout the U. S. . . . .

BIRD DOUBLES CAPACITY IN SOUTH

Bird & Son, Inc., East Walpole, Mass., paper products and building materials manufacturer, is spending approximately $750,000 to double the capacity of its felt mill at Shreveport, La., from 60 to 120 tons a day. New equipment will include Beloit suction primary and suction second presses, 18 new Beloit 150-lb. pressure driers, 2 chemipulpers, 1 Hydrapulper, and a 30,000-lb. Riley boiler. Rust Engineering Co., Pittsburgh, has contract for engineering and installation . . . . . .

WATER FOR MACMILLAN EXPANSION

Additional water supply facilities are being provided for the H. R. MacMillan Export Co's bleached sulfate mill at Harmac, near Nanaimo, B.C., as a result of the decision to boost production. H. A. Simons, consulting engineer for the whole project, is doing the engineering on the water system, which will bring water through a 50 foot stave pipe from the Nanaimo River just below Fourth Nanaimo Lake. The new rock fill dam, tunnel and pipeline will cost about $2 million.

Bob Petrie Dies In New Liner Crash

Robert T. Petrie, for many years Pacific Coast representative for Black-Clawson Co., and its divisions, Shartle Bros., and Dilts Machine Works, and the Kohler System, died in the crash of a new type DC-6B United Airlines plane near Oakland, Calif., Aug. 24.

Mr. Petrie, who was 53, was flying nonstop from Chicago to the coast, after a business trip to the Ohio headquarters of his companies.

One of the pioneer equipment men in the Far West, Mr. Petrie had an important role in many of the new developments in that area and for years was most active in furthering association affairs of the industry. Many of nearly 1,000 delegates to the national Superintendents convention in June in Portland, Ore., saw him there for the last time, as he was chairman of all transportation for that affair, and his son, Gordon, gave a paper at that meeting.

Mr. Petrie lived in Portland, Ore., and headed the office for the Black-Clawson companies which was established in the Mayer Building there. His son, Gordon, had only recently become his assistant in that office. His widow, Lillian, and four sons survive.

Just last month PULP & PAPER published an article with his picture, reporting his recent air trip to New Zealand and Australia.

Bryan, From South, Now Gen. Supt. at Atenquique

W. Bryan, American papermaker formerly in mills in Southern states, is the new general superintendent of Compania Industrial de Atenquique, the government-owned 100-ton kraft pulp and board mill at Atenquique, Mexico, 135 miles south of Guadalajara. Mr. Bryan has been at the mill for some years as assistant superintendent.

Built in 1947 by the late Enrique Anisz, brilliant Czechoslovak immigrant, assisted by the late Arthur Ready, formerly of Rayonier, the mill reverted to government ownership a few years ago. David Kuhe, now assistant manager at Crossett; Stanley A. Wilkes, now at Rte. 2, Hardwick, Vt., and considering returning to the kraft industry; and Mexican engineers have followed Mr. Ready in directing the mill operations.

Fox River Paper Names Superintendents

Arnold G. Beaman, former superintendent of the Fox River mill of Fox River Paper Corp., of Appleton, Wis., has been appointed superintendent of its Telulah mill, across the river, and Alex Laux, former assistant superintendent at Telulah, has been named superintendent at Fox River.

The promotions were announced by William Roberts, vice president in charge of production, as resulting from retirement at the age of 65 of Joseph Haberman, former Telulah superintendent.

THIS AIR VIEW OF WARD'S COVE, obtained by a PULP & PAPER editor in Alaska, shows where the Ketchikan Pulp & Paper high alpha mill will be built. Arrow points to the spot, six miles northeast of Ketchikan. A fish reduction plant is shown across the cove. The highway is one of the few in Alaska; it is just 15 miles long, but (believe it or not) many Alaskans have automobiles. The site already has been sounded for mill foundations; surveying and engineering are going on, the Forest Service has moved road and clearing area for housing mill workers.

As we reported in previous issue, work on construction will begin shortly before or after Jan. 1—the mill, under terms of Forest Service pulpwood contract, must be in operation by July 1, 1954, making 300 tons, later increasing to 550 tons.

ALASKA MILL ENGINEERS

Plans were being carried forward rapidly for the new high alpha dissolving pulp mill which the Ketchikan Pulp & Paper Co., of Bellingham, Wash., is going to build at Ward's Cove, a few miles north of Ketchikan, Alaska, climaxing 30 years' effort of the U. S. Forest Service to bring the industry to that territory. It is a $40,000,000 total project, including site, mill, etc.

Under President Lawson P. Turcotte, who is also president of Puget Sound Pulp & Timber, directors meetings have been held and reorganization of the company in which Puget Pulp and American Viscose Corp. are principals, has advanced.

Overall enginering for the project will be carried on at Bellingham for at least six months longer, it is expected. Harold D. Cavin, a former Hardy S. Ferguson engineer and well known builder of Pacific Coast and Southern mills, is the chief engineer. He is also chief engineer for Puget Pulp.

Two key men have joined his engineering staff:

Henry Pratt, longtime project engineer for Union Bag & Paper Corp., Savannah, Ga., has joined Mr. Cavin as project engineer for the Alaska program. He was assistant to Mr. Cavin in building the Hollingsworth & Whitney mill at Mobile, Ala., in 1939-40 and was also a long time with the Ferguson firm of New York.

E. S. Brandon, as specialist in screen room and bleach plant construction, has joined Mr. Cavin. He was formerly associated with him in the construction at Bellingham and formerly was with National Container Co. of Michigan.

Ross Phalzgraff, chief engineer of the far-flung American Viscose Corp. (see Sept. issue of PULP & PAPER for story on American Viscose and what it brings to the pulp industry), has and will frequently confer with Mr. Cavin and his staff. His headquarters are in Philadelphia. He has several hundred engineers under him.

It is likely that Mr. Cavin's staff will build up to 25 or 30 engineers working in Bellingham until they move north to Ketchikan in the spring.

The pulp mill, starting in 1953 by making 300 tons of finished pulp, will be Alaska's first and only all-year around industry. By 1963 it is to make 525 tons a day. A Forest Service award of timber is calculated to keep the mill operating in perpetuity.

LAWSON P. TURCOTTE (left), President of Ketchikan Pulp & Paper Co., whose re-organization followed quickly upon the final big Alaska timber award made recently to that company by the U. S. Forest Service and announced in our last issue. Mr. Turcotte, also President of Puget Sound Pulp & Timber Co., lives in Bellingham, Wash.

JOHN MALONEY (right), Vice President-Sales Mgr. of Hoberg Paper Mills, Green Bay, Wis., who, as we recently announced, is now Director of the Pulp & Paper Division of NPA in Washington.

W. H. CHISHOLM (left), Assistant to the President of Oxford Paper Co., and W. LEROY NEUBRECH (right), Pulp and Paper Chief in the Department of Commerce, hold key positions in the newly organized Pulp, Paper & Paperboard Division of the National Production Authority in Washington, under the Division Director, John Maloney and his Deputy, John Franzen. On one side, Mr. Chisholm is Special Assistant for Operations, on the other Mr. Neubrech is Assistant to the Director, with statistics, administrative services and foreign and labor sections under him. All other sections—wood, paper, pulp, board, machinery, etc., are directly under Mr. Maloney and Mr. Franzen.

JAMES L. RITCHIE (right), was listed with L. Cicolson in the Wood Pulp Section, with Waste Paper Section under Raw Materials chief, A. M. Howe.

Big Quebec Expansion

Howard Smith Paper Mills plans to spend $21,000,000 on expansion and modernization of plants at Windsor Mills and Crabtree Mills, both in Quebec. Most will go into Crabtree—$14,000,000 in two years.

MEETINGS IN SOUTH

Jacksonville, Savannah Sessions

The eyes of the industry are nearly always strongly focused on the Southeast of the United States, but if the locale of meetings is any clue, they were more than ever in the first half of October.

After the alkaline pulping session in Richmond, Va., sponsored by TAPPI, there was the joint superintendents convention of both Southern and Southeastern Division being held in Jacksonville, Fla., in the second week of October and, finally, the Engineering conference—drawing delegates from all over the continent—at Savannah, Ga., in the second week of October.

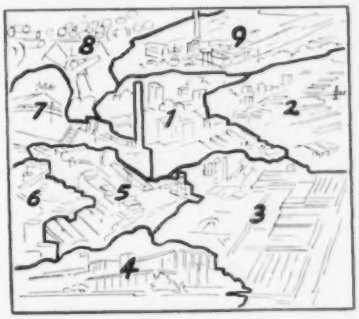
Hudson Pulp & Paper Corp., is completing its second unit, doubling capacity, at Palatka, Fla.; work has begun on the new model St. Regis mill to be built at Jacksonville, and National Container Corp. has completed financing to raise new funds of $25,000,000 for a $32,000,000 500-ton kraft mill at Clayttville, Ga. Several companies, British and American, are jockeying over possible other new mill sites in Brewton and Butler, Ala., while Mead Corp. has announced a new mill for Rome, Ga., and Buckeye Extract Co., long in cotton linters pulp business, is going into woodpulp with a new mill in Perry, Florida. A bagasse newsprint mill is planned at Clewiston, Florida. But expansion of several existing companies in the Southeast is also big.

Photographs on these pages show what delegates will see in Florida and Georgia meetings. Our cover picture this month is a *montage* of the Southeast pulp and paper industry, many scenes recognizable to our readers—Union Bag, Southern Paperboard, National Container and Rayonier mill glimpses and cutouts of air views of Jacksonville—with 300,000 population, and Savannah—with 150,000. Many delegates heading South and those from other Southern points will be viewing these scenes in October.

KEY TO OUR COVER ART—MONTAGE OF SOUTHERN SCENES

Eyes of the industry this month are on the Southeast, not only because of the plans announced for new mills at Rome and Clayttville, Ga., at Clewiston and Perry, Fla. and expansion of old ones, completion of new operations (another machine has started up at Kimberly-Clark's Memphis mill, also Hudson Pulp & Paper is doubling its capacity at Palatka, Fla., and Hollingsworth & Whitney has done likewise at Mobile, Ala., St. Regis is starting construction at Jacksonville of a new mill engineered by Justin McCarthy). Attention also is on the Southeast because of the series of meetings within a period of less than four weeks—at Richmond, Va. (Alkaline pulping); Jacksonville (Superintendents); and Savannah (Engineering Conference—national). Jacksonville and Savannah are industrial hubs of their states and of much new pulp and paper production.

In recognition of these circumstances, PULP & PAPER's artist has created a montage of Southern scenes for our cover picture this month. Here is the key to the cover scenes:



1. Air view of business section of Savannah.
2. Air view of Jacksonville and Broad St. Johns River.
3. Air view of Union Bag & Paper Corp., Savannah, world's largest integrated kraft container plant. (Light-colored buildings are new additions—including new No. 5 machine.) Upper left—Pulp and Paper Division. Upper right—Bag Division. Lower right—Box Division.
4. Union Bag's Mary Calder Golf and Country Club—for employes.
5. Rayonier's purified pulp plant at Fernandina, Fla.—only sulfite mill in South.
6. Glimpse of roll storage well in Union Bag plant is crowded around the Rayonier plant.
7. Looming over Rayonier are settling tanks and a high stack of National Container Corp. at Jacksonville.
8. Trucks dumping wood into a trough-conveyor in yard of Union Bag.
9. Southern Paperboard Corp., division of Robert Gair Co., Inc., at Port Wentworth, near Savannah, built just 3 years ago.

These and many other scenes will be viewed by engineers from mills all over North America, superintendents and other mill executives from South and North, and equipment and supply men who are foregathering in the Southeast this month.

About Savannah and its Mills

On Feb. 12, 1733, General James Edward Oglethorpe and a sea-weary band of 120 followers landed on Yamacraw Bluff, founding for posterity beautiful Savannah, in the colony of Georgia.

The port of Savannah, from as early as 1896 up to the present time, has never handled less than 1,500,000 tons of cargo in any one year. Its principal commodities include bags, paper and paper goods, clay and sodium sulphate.

Savannah's other forms of transportation include five railroads, three airlines, six bus lines and 25 motor freight lines traveling over five federal and state arterial highways.

The Atomic Energy Commission is building a $600,000,000 plant just 85 air miles north of Savannah. Ultimately, this huge project will employ between 25,000 and 30,000 people, many of whom will reside in the Savannah area.

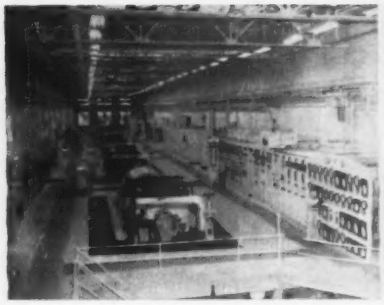
American Cyanamid Co. has recently obtained an option on approximately 1,600 acres of land east of the city. The initial plant is expected to employ about 600 persons. The Company proposes the erection of a series of plants, each costing several millions of dollars, and to eventually employ many times the original working force.

Union Bag & Paper Corp.—the world's largest integrated pulp and paper plant—employing 5,000 people has announced announced another tremendous expansion program. Within the next two or three years it will complete new facilities costing many millions of dollars and add to its already mammoth number of employes.

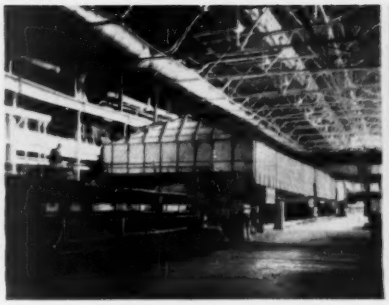
Upriver at Port Wentworth is another important comparatively new paper company to be visited by the Savannah engineering delegates—Southern Paperboard Corp., a subsidiary of Rober Gair Co., Inc. Completed three years ago, this mill makes kraft pulp and 450 tons a day of board on one Fourdrinier. Union Bag is much larger, of course; will soon have six machines.

The Hermitage Plantation is the site of the Savannah plant of Union Bag. Unlike most ante-bellum plantations of the South it was devoted to industrial rather than agricultural pursuits. Henry McAlpin, the developer of the Hermitage, was a native Scotchman. Mr. McAlpin built a mansion and buildings required to house his more than 200 slaves, constructed a number of brick kilns and from their ovens came millions of brick of "unusual size, hardness and durability" that went into the construction of the finer homes and commercial houses in the nearby "Mother City of Georgia."

Unoccupied for many years, the buildings on the Hermitage Planation deteriorated rapidly and the tract itself served no useful purpose until 1917, when the

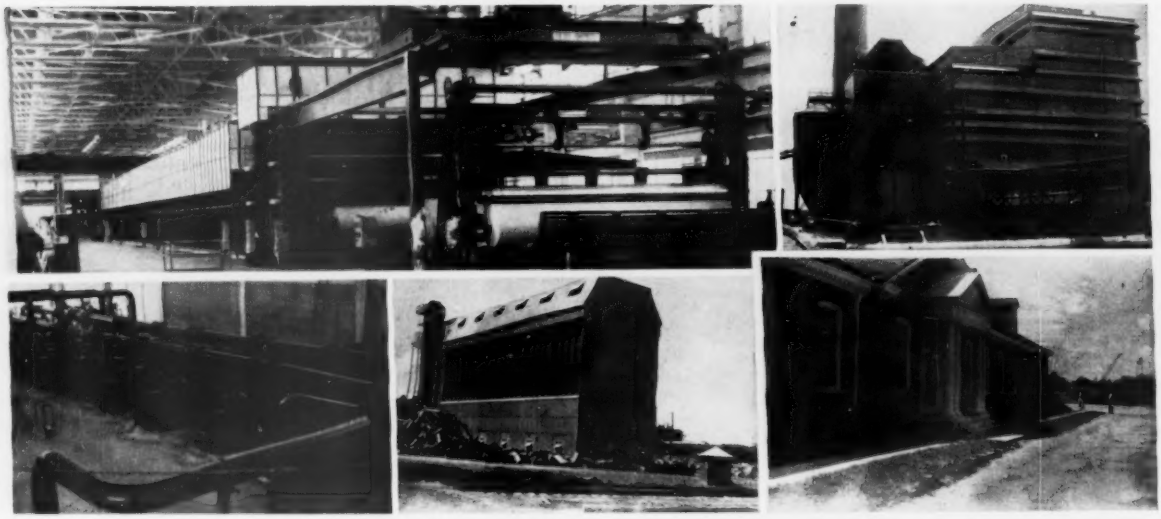


THESE ARE SCENES THE ENGINEERING CONFERENCE *delegates will see in Savannah. Here is the turbine room for the big Union Bag & Paper* Corp. mill to be visited by delegates on Thursday, Oct. 18. *These are General Electric turbines which generate more than enough electricity for a city the size of Savannah.*



HERE IS NO. 5 PUSEY & JONES 230-in trim Fourdrinier machine with ROSS ENGINEERING CORP. *ventilating hood—the latest machine at Union* Bag & Paper Corp. Although this has been in just 4 years, Union Bag already is building No. 6. By the end of this year—at least a year before No. 6 is completed, UB will have increased its present production of 1,350 tons a day to 1,450 by improvements.

AIR VIEW OF THE GENERAL OGLETHORPE HOTEL —on Wilmington Island, several miles from Savannah. This is where Engineering Conference sessions will be held October 14 to 17. Swimming pool and beach on the river are shown in front of the hotel—the golf course is right behind the hotel convention headquarters.



HERE ARE VIEWS THAT WILL BE SEEN BY ENGINEERING DELEGATES who visit Southern Paperboard Corp. (Robt. Gair Co. Inc.), built three years ago at Port Wentworth, near Savannah. The Engineering Conference will be guests at a Southern Paperboard cocktail party Oct. 17 and next day delegates will visit the mill. Top left, 236-in. high speed Pusey & Jones kraft linerboard machine with Ross hood and GE drive. Top right, Combustion Engineering Recovery Plant and Cottrell Precipitator. LOWER ROW—E. D. Jones & Sons Majestic Jordans for refining; chip storage building with elevator in center; and an Office view at right.

Diamond Match Company erected a small plant. About ten years before Union Bag acquired the Hermitage tract, the late Henry Ford purchased the mansion and the other smaller buildings on the property. The home was dismantled and most of the materials were used in the construction of the late motor magnate's home at Richmond Hill Planatation about 25 miles from Savannah. The 52 slave huts that stood for more than a century along the avenue of oaks leading to the mansion are now museum pieces at Dearborn, Mich.

Hardenbrook Address

In a recent adress, D. J. Hardenbrook, vice president of Union Bag, told about the company and its plants at Savannah, as follows:

"Through the 1920's the company owned pulp and paper mills at Hudson Falls, New York; Sheboygan, Michigan; Tacoma, Washington; and Kaukauna, Wisconsin; and bag factories in Hudson Falls and Long Island City, New York; Chicago; Los Angeles; Orange, Texas; Vancouver, Washington; and Bogalusa, Louisiana. Today all of these properties are no longer with us except the bag factory at Hudson Falls. Instead we have corrugated box plants in Chicago and Trenton, New Jersey, and the world's largest integrated pulp, paper and board mill, box factory and bag factory at Savannah.

"This was indeed an industrial metamorphosis, and it was brought about by the vision and courage of Alexander Calder who joined the company in 1913 and who assumed the presidency in 1931. Under his stewardship the sales have risen from approximately $6,500,000 to the expected figure of $100,000,000 for this year.

"The first machine unit in Savannah started making paper in 1936. The second and third units were completed just in time to meet the 1938 depression. Despite the conditions at that time we were able to produce a net profit after taxes at the end of 1938 of $903,892. During the depression we never shut down the Savannah mill one hour for lack of orders, and it ran three shifts a day, seven days a week. The fourth unit was completed at the end of 1942 and the fifth in 1947. We are now building a sixth and expect to complete it in a little over two years.

"All through the company's echelons of management we have old timers and

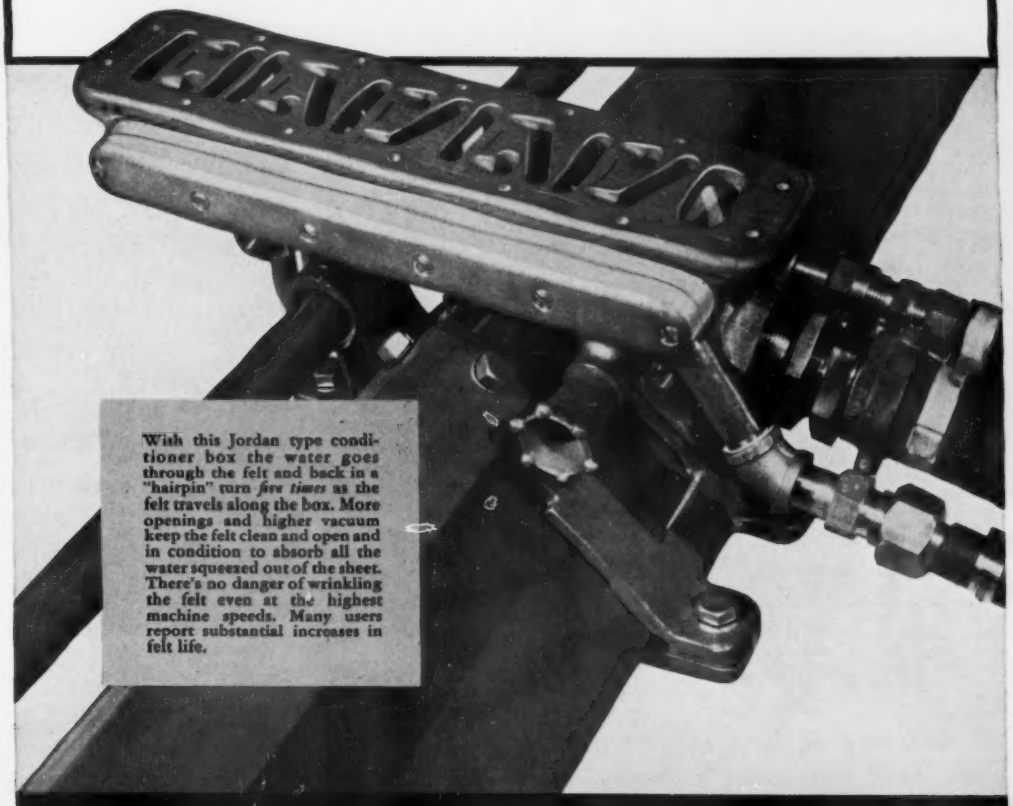
HOW CAN YOU DO WITHOUT THIS UNDER TODAY'S CONDITIONS?

The harder and faster you work your press felts, the more you need VICKERY FELT CONDITIONERS with Jordan type conditioner boxes, like the one pictured.

When felts run faster they fill up faster. Yet mid-week machine shutdowns to unclog felts can no longer be tolerated.

That is why so many Vickery Felt Conditioners with Jordan type boxes are going in right now.

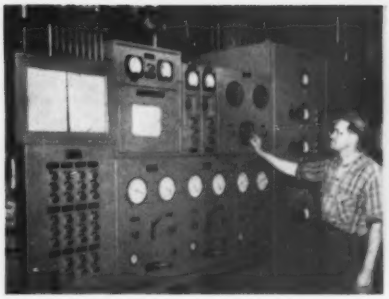
How about *your* press felts? Are they equipped to meet today's production demands?

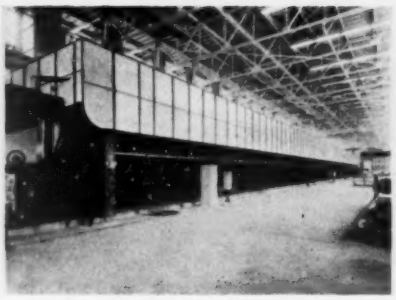


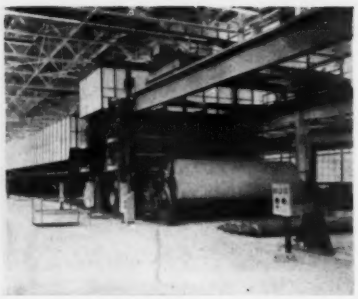
With this Jordan type conditioner box the water goes through the felt and back in a "hairpin" turn *five times* as the felt travels along the box. More openings and higher vacuum keep the felt clean and open and in condition to absorb all the water squeezed out of the sheet. There's no danger of wrinkling the felt even at the highest machine speeds. Many users report substantial increases in felt life.

BIRD MACHINE COMPANY

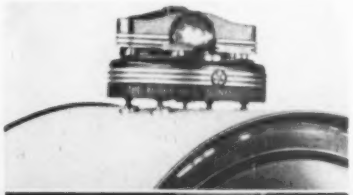
SOUTH WALPOLE • MASSACHUSETTS

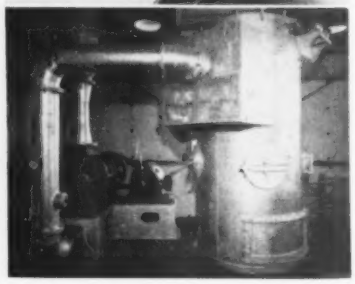






ONE OF LARGE PROGRESSIVE MILLS in Southeast along the route of many attending the Jacksonville and Savannah October meetings is Chesapeake Corp. of Virginia, at West Point, Va. Tappi's discussion on electrical engineering finds good application in Chesapeake's plant which features this Westinghouse master control panel for wet end of pulp machine with electronic speed control for first press and pre-dryer rolls. At extreme left are push button starters for stock and water pumps; section at upper left center contains pneumatic Foxboro controls for loading first press with Peacock Bros. controls for smoothing roll, press roll and couch immediately below. To right of operator is control panel for 9-pass Ross drying oven. TAPPI VISITORS at SOUTHERN PAPERBOARD CORP., Port Wentworth, Ga., saw this modern-type Ross System installation over main dryers (middle picture) and calender dryers (picture at right). Proper roof heating and ventilation is achieved through special diffuser outlets in the system. In washer room of this plant a Ross hood and exhaust system has also been installed over pulp washers.





"STUDY OF HARDNESS OF RUBBER COVERED ROLLS" at Savannah Engineering conference featured the new model Pusey and Jones "Plastometer" shown here in top picture. The instrument is designed to measure plasticity of rubber-covered lower press rolls while roll is still in position on the machine, and to predict in advance cracking and corrugating defects. The Plastometer is only 4 inches high, and has been designed for compact easy operation. PICTURE BELOW shows.

An installation of interest to materials handling students at the conference—"Airveyor" pneumatic conveyor system manufactured by the Fuller Co., Catasauqua, Pa., is typical of those installed or being installed in a number of Southeast mills. In one particular mill under construction, three systems are being installed for unloading pebble lime, soda ash and salt cake from railroad cars and delivering to storage bins. In another mill, the salt cake system not only unloads cars but reclaims from storage bins, delivering salt cake to surge bin above mixing tank in recovery building.

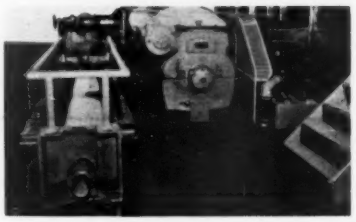
WOOD HANDLING is a subject of prime importance at Southern meetings. Here are more views showing how its done in South. TOP-SONOCO PRODUCTS CO., of Hartsville, S. C. built this concrete lined flume to conveyor to barker. Water is used in the flume. BELOW—ST. REGIS PAPER CO. at North Pensacola, Fla., uses this escalator for logs (Pulp & Paper and American Forest Products Industries Inc pictures.)

young comers working together, with the latter getting the benefit of the senior men's knowledge, so that they can take over as the retirement periods roll around. The average age of the ten Union senior officers is 52. The average length of service is 20 years.

"We started nearly a hundred years ago and down through the years we shed ourselves of old appendages and today we have a physical property that averages only about 7 years of age. The depreciated value of land, buildings, machinery, equipment and timberlands is $35,000,000. Fortunately, most of them were acquired during lower cost periods and it would probably cost $120,000 to $125,000,000 to replace them today.

"At the present time the Savannah mill is turning out around 1,350 tons of paper and paperboard per day. We expect this to reach around 1,450 tons by the end of this year as a result of certain capital expenditures. Broken down still further, the company's total bag tonnage is approximately one-half, paperboard and corrugated containers a little less than one-half, with market and waterproof paper and tall oil making up the balance. Last year we shipped 461,000 tons of finished products—this year looks like 500,000 tons. The paper mill chews up about 25,000 trees a day—the bag factory grinds out around 40,000,000 bags a day, which if laid end to end would reach from New York City to London and back again. The paper and paperboard machines turn out enough paper and board to carpet every day a two-lane highway from Savannah to Chicago.

ONE OF IMPORTANT PAPERS PREPARED FOR THE SAVANNAH ENGINEERS meeting is one by ROBERT NIVISON, Sales manager, Engineering Department, Improved Paper Machinery Corp., on the "Capacity of Thickeners." This is a photograph PULP & PAPER has obtained of a filter which was to be mentioned in his talk—it is a 6 ft. 6 in. by 14 ft. valveless vacuum filter in operation at Nekoosa-Edwards Paper Co. Mr. Nivison was to point out to his Savannah audience that this type of thickener is handling 155 tons of kraft pulp from .3% A.D. from the flat screens and discharging 12% pulp.



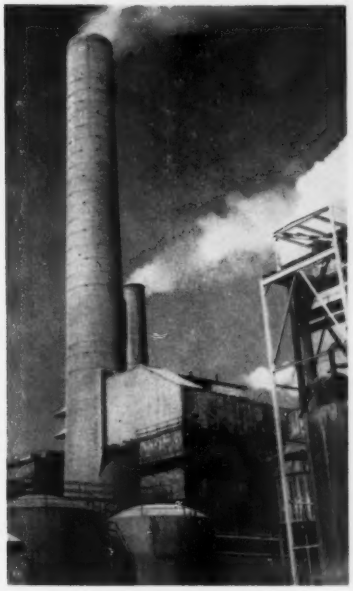
CAMP MATERIALS HANDLING

Materials Handling will be one of important discussion topics at TAPPI'S Annual Engineering Conference at Savannah. A Southeast company that stands high in materials handling development and practices is Camp Mfg. Co., Inc., Franklin, Va., as series of photographs shown here reveal.

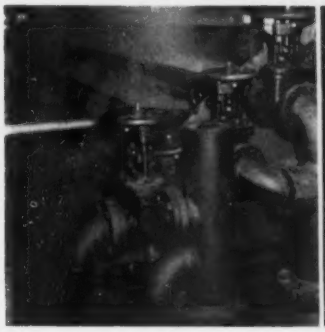
AT LEFT, is special tractor trailer unit built at Camp's suggestion and designed for pickup and transportation of pulpwood from various concentration yards within a 30-mile radius of Franklin. Equipment is meant to carry from 5 to 6 cords of wood, for fast traveling on good roads.

AT CENTER, cars operate in Camp's Franklin yard transferring wood from log storage piles to the slasher. Notice how cars are built to cradle the load and in a way to make for both easy loading and unloading.

AT RIGHT, Link-Belt crane with Blaw-Knox grapple unloads in the Camp woodyard. Logs handled in full length cuts down costs in the woods, in transportation and in yard. Pulplogs are cut to 5-foot lengths on special gang-saw-equipped conveyor line. The Camp company, founded in 1887, owns several hundred thousand acres of timberland in Virginia and North Carolina, and runs an integrated lumber-pulp-paper operation in Franklin. The pulp and paper division this year completed a $6,000,000 expansion program with the installation of No 3 papermaking unit, and is presently engaged in erection of a semi-chemical pulping plant.



COMBUSTION ENGINEERING recovery plant stack at Union Bag & Paper Corp. with Research Corporation electric precipitators below. U. B. ordered its 4th C-E Recovery Unit this year. This and No. 3, installed in 1949, are both 350 ton capacity, designed to burn 1,050,000 lbs. of black liquor solids per 24 hrs. and will produce steam at 425 psi. and 725 F.



SWENSON-NYMAN WASHERS are shown in these two views at Union Bag & Paper Corp.

New Mill Site Is at Clyattville, Ga.

Selection of Clyattville, Ga., as the site for its new $23,000,000 500-ton capacity container board mill has been announced by National Container Corp. The location is about 150 miles west and north of Jacksonville, and 10 miles south of Valdosta, Ga. It is estimated that the mill will consume 250,000 cords of pulpwood annually.

Sulfur Situation At a Glance

Developments designed to relieve the sulfur shortage during the past few weeks have included the following:

1. Announcement by John Hay Whitney and Langbourne M. Williams, Jr., president and chairman, respectively, of the Freeport Sulphur Co., of plans to erect a mining plant to cost from $10,000,000 to $15,000,000 for taking 500,000 long tons of sulfur a year in the Mississippi delta area. Known as the Garden Island Bay project, the mine is to be operated under lease agreement with the Texas Co. It is hoped to be in production in 1953, and Freeport has been issued a certificate of necessity for $3,868,600 for tax amortization of construction costs.

2. Texas Gulf Sulphur Co. has announced plans to spend several million dollars expanding the capacity of its Moss Bluff plant by 50%, and to begin production by early 1952 at its Spindletop Dome plant near Beaumont, Texas. Both plants have a capacity of between 500 to 1000 tons of sulfur per day.

3. Jefferson Lake Sulphur Co. has begun production at its Calcasieu Parish, La., plant to yield about 100,000 tons annually.

4. The Sulphur Exploration Syndicate, including such companies as Imperial Chemical Industries, Monsanto and Fisons, has been formed in Great Britain to discover sources of sulfur which may be economically exploited. A mission has already been sent into Chile to explore finds of the material made in the Andes earlier this year.

5. Certificates of necessity have been granted to a large number of companies making or using sulfuric acid for the construction of plants to produce sulfur from pyrites and sour and refinery gases.

Some spokesmen for the industry point out that although the amount of sulfur in sight has increased greatly in the past few months, the demand for the product has also increased greatly. So they caution that sulfur may still be in tight supply for a number of years.

MACHINE TENDER Munchausen Stories

The winning story for our Machinetender Munchausen column this month was submitted by C. R. P. "Dick" Cash, resident manager, Fibreboard Products Inc., San Joaquin Division, East Antioch, California, whose likeness is shown in the accompanying photograph.

Unquestionably this is one of the most amazing stories that ever have appeared in this column, but Mr. Cash, with both hands behind his back, guarantees its veracity. He says old papermakers in the St. Maurice valley of Quebec will remember "the Year of the Stiff Water" when there were no breaks on the machines.

If Mr. Cash appears to be casting aspersions in his story on "State of Mainers," it should be noted that he was former superintendent at the Brown Corp. kraft operations at LaTuque, in Quebec, and was able to overleap Maine when he was promoted from there to general superintendent at the new Brown Co. kraft mill in Berlin, N. H.

He received his technical training at TriState College in Indiana, went west to the new kraft mills in Tacoma, Wash., and St. Helens, Ore., over 20 years ago, and was the first chairman of Pacific Coast TAPPI when it was organized in 1929 (in fact, this was the *first* TAPPI Section ever formed). He married a British Columbia girl, who has accompanied him since in his moves to some of the continent's major kraft operations—he was superintendent with Champion for 10 years at Canton, N. C., before going to La Tuque and Berlin. When Fibreboard built the first kraft mill in California, it called Mr. Cash west as superintendent, then promoted him to manager.

We are very happy to send Mr. Cash our customary honorarium of $5 for this story.

Mill men or peddlers, you are invited to try your hand at writing a story for this column—

Mr. Cash's Story—
"The Year of Stiff Water"

"It was many years ago that I went timber cruising in the upper St. Maurice Valley. It fell my ill lot to have to be helper to a new graduate from the University of Maine. This fellow thought he was a woodsman, but anyone knows that no State of Mainer can equal a Quebecer for woodcraft. To top matters, the guy could not cook and made me do so, and with his criticism that I kept him on short rations of bannock.

"Finally he got a new helper, an ex-cook by the name of Albert. When Albert arrived, the State of Mainer told me to stay in camp and cook bannock as he had never had enough to eat since being with me. By this time I was full of mosquito venom and I could have had that epithet applied to me 'that Truman hath immortal made.' I got busy and cooked bannock. I seemed to have miraculous powers because, like the Bible story, the cruse of oil did not run dry, neither did I get fresh out of meal or rather flour.

By night time I had two acres of clearing covered with bannock when Albert returned with the buzzard from Bangor. Albert took one look at the bannock and became enraged. He said if he had to eat that he would quit, and anyway he could get fresh bread from the cook at Windigo. He started kicking bannock into the river. Normally this would have taken two days but he was so mad it was all floating by morning.

"The effect of this was prodigious. Actually I was instrumental in stiffening the whole St. Maurice River. What had been raging rapids, white with foam, now became viscid channels white with blanc mange. The river drivers all took to snowshoes instead of drivers' boats, but try as they would the drive was hung and the mills had to operate on their back logs. (They do not like this as it makes them short of fireplace wood.)

"Probably the drive would not have got hung if the river drivers had not soon found that they could scoop up a frying pan of St. Maurice river water and fry it into the finest flap-jacks. This made them so fat they could not be supported on the water on their snowshoes.

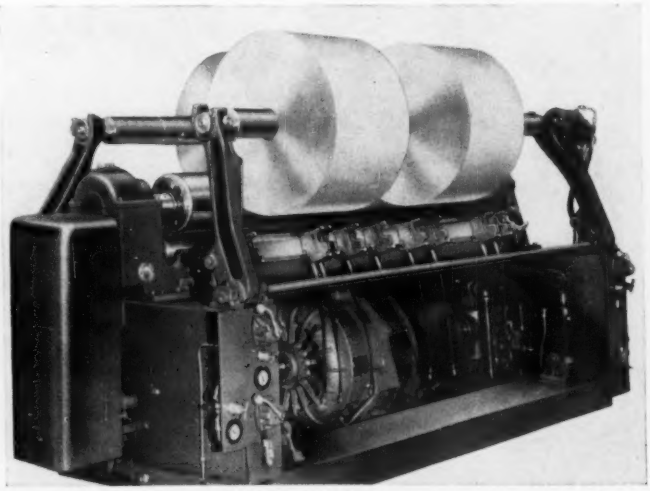
"A couple of Harvard students on a fishing trip saw these river drivers frying the water into flap-jacks and rushed up uttering funny sounds and making strange medicine. They thought they had happened on a summer meeting of the Hasty Pudding Club.

"Down in the mills stranger things were happening. Although operating on their back log, the news mills kept going all year. The river water made the newsprint so stiff that they cut the basis weight in half and for the first time in history a metropolitan daily would hold together while read. All pulp prices were doubled because of the added strength.

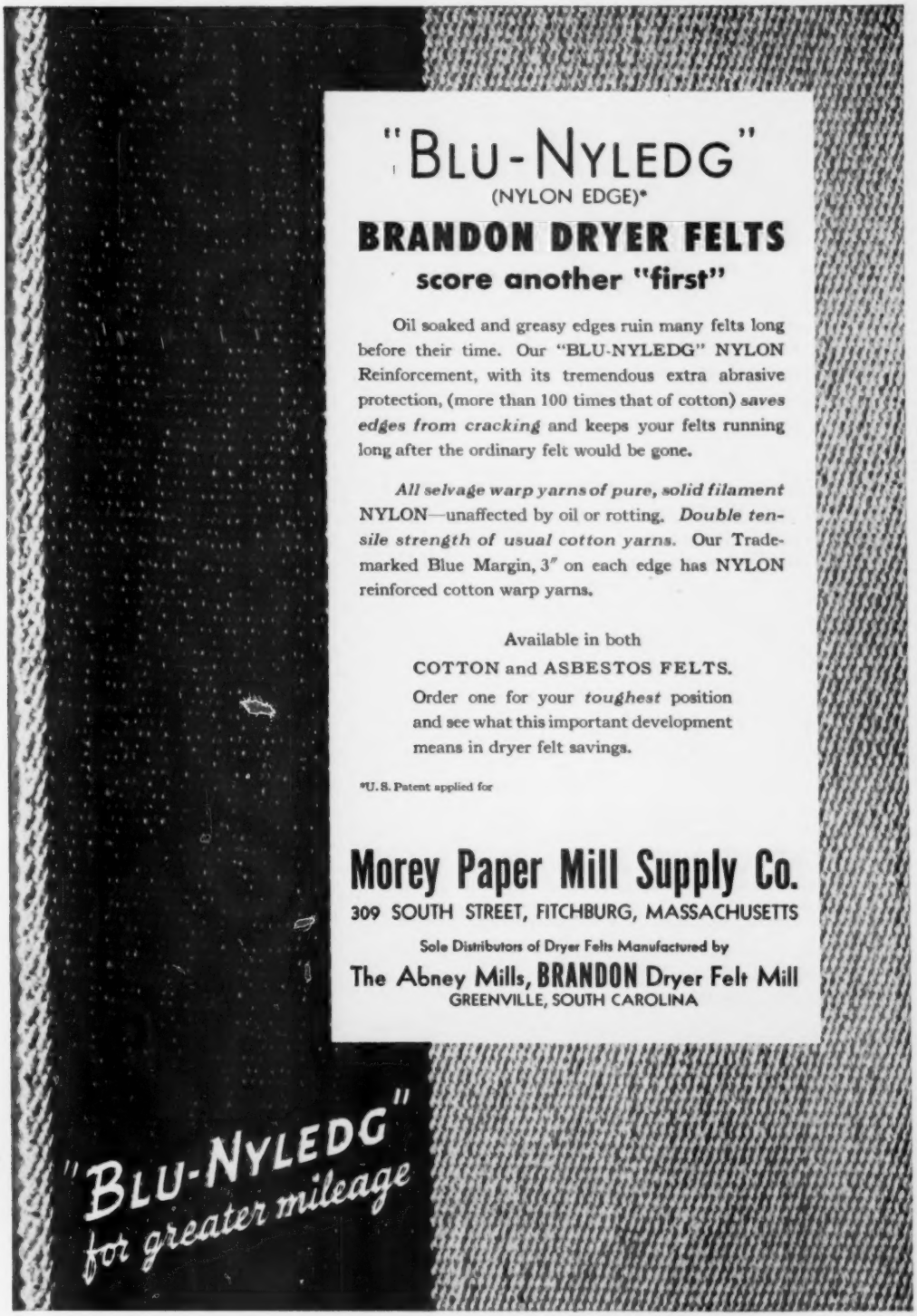
"Drinking the water put so much starch in the workers' backbones that efficiency was doubled although it is reported both domestic and labor relations were somewhat tried during this period.

"A move was afoot to rechristen the St. Maurice and call it Bannockburn but somehow this never came about. Old paper makers still sigh for the Year of the Stiff Water when there were no breaks on the machine."

NEW BAGLEY & SEWALL DUPLEX REWINDER



Simplicity of design, variable speed drive up to 1500 ft. p.m., compactness, and vibrationless operation are features of this new B & S #15 Duplex Rewinder, of 36 in. rewind capacity. Machine has hydraulically driven differential Rewind Shafts and its air-operated Slitters make strips as narrow as ½ inch. Accurate pressure control between Drum and Rewind Shafts, fully enclosed hydraulic and air piping, and easily accessible controls are other features. For roll widths from 42 to 92 inches.



"BLU-NYLEDG"

(NYLON EDGE)*

BRANDON DRYER FELTS

score another "first"

Oil soaked and greasy edges ruin many felts long before their time. Our "BLU-NYLEDG" NYLON Reinforcement, with its tremendous extra abrasive protection, (more than 100 times that of cotton) *saves edges from cracking* and keeps your felts running long after the ordinary felt would be gone.

All selvage warp yarns of pure, solid filament NYLON—unaffected by oil or rotting. *Double tensile strength of usual cotton yarns.* Our Trademarked Blue Margin, 3″ on each edge has NYLON reinforced cotton warp yarns.

Available in both

COTTON and ASBESTOS FELTS.

Order one for your *toughest* position and see what this important development means in dryer felt savings.

*U. S. Patent applied for

Morey Paper Mill Supply Co.

309 SOUTH STREET, FITCHBURG, MASSACHUSETTS

Sole Distributors of Dryer Felts Manufactured by

The Abney Mills, BRANDON Dryer Felt Mill

GREENVILLE, SOUTH CAROLINA

NEW YORK WOODPULP IMPORTERS received seafood "treasure chests" when guests of the Greater Portland, (Me.) Chamber of Commerce, the Grand Trunk-Canadian National Railways and the Boston & Maine-Maine Central Railroad in Portland, Me., recently. Those honored with presentation were (standing, left to right) A. J. Fox, Castle & Overton; Richard F. Kist, Perkins Goodwin Co.; and Stacey Bender, Jr., Pulp Sales Corp. Kneeling, left to right: R. E. Hanssen, Stora Kopparberg Corp.; Harold J. Lanney, Pagel, Horton & Co.; J. J. Santry, Eloff Hansson, Inc.; William Neidinger, Pulp Sales Corp.; Edgar L. Boeck, Nordicus, Inc.; and Frank Venn, Castle & Overton, Inc.

OFFICIALS WITNESSING THE BEGINNING of construction of a new 250-ton market bleached kraft pulp mill for Weyerhaeuser Timber Co. on the Snohomish River at Everett, Wash., adjacent to its Mill C Sawmill. Left to right: RUSSELL J. LEROUX, Manager, of all Weyerhaeuser's pulp operations in Everett; T. N. CREACY, Supt. for L. H. Hoffman Construction Co. of Everett, Wash., which has contract for the construction; L. N. REICHMANN, Res. Mgr. for Weyerhaeuser in Everett, and GERALD F. ALCORN, Weyerhaeuser Pulp Division Engineer in charge of new construction, whose new assignment at Everett is concurrent with work of completing the other new kraft mill being completed at Longview, Wash.

DPA Certificates of Necessity

Certificates of necessity granted by DPA for accelerated tax amortization of new or expanded plants to be built by the pulp and paper industry include the following:

Company	*Product*	*Certified*
Brown Co., Berlin, N. H.	SO$_2$ Gas	$ 548,800
St. Regis Paper Co., Howland, Me.	Kraft Pulp	595,000
Mosinee Paper Mils Co., Mosinee, Wis.	Pulp	700,000
Fibreboard products Inc., Antioch, Cal.	Paperboard	1,439,404
Crossett Lumber Co., Crossett, Ark.	Kraft Paper	93,255
Brown Co., Berlin, N. H.	Woodpulp	3,151,876
Brown Co., Berlin, N. H.	Woodpulp	1,318,075
Paulsboro Mfg. Co., Fullerton, Pa.	Kraft liner	42,538
Grant Photo Products, Inc., Cleveland, O.	Waterproof paper	93,300
Penobscot Chemical Fibre Co., Old Town, Me.	Woodpulp	817,717
Fitchburg Paper Co., Fitchburg, Mass.	Waste paper	208,049
Roanoke Rapids Paper Co., Inc., Roanoke Rapids, N.C.	Waste paper boxboard	2,600,855
Combined Locks Paper Co., Combined Locks, Wis.	Pulp fibre	369,765
Pacific Paperboard Co., Longview, Wash.	Paperboard	993,950
West Virginia Pulp & Paper Co., Luke, Md.	Sulfate pulp	3,500,000

Harry Richmond, Long Time Pacific Coast Leader, Dies

Harry Hughes Richmond, chief engineer of Electric Steel Foundry Company, died August 15th in Portland, Oregon, from a long illness which forced his retirement in January, 1951. He was 63 years old, having been born November 24, 1887, in Portland.

Harry's principal work and interest was in Pulp mill engineering problems as they were related to stainless and high alloy steels. He was a prominent figure in pioneering the adaptation of stainless steels to Pulp mill uses. He was a member of TAPPI, National Association of Itinerant Peddlers, and for years was closely associated with the Crown Willamette Paper School at Camas, Washington. Besides participating regularly as guest lecturer at the school for the past 14 years, he further contributed to the success of this educational program in advisory capacity. On March 15, 1951 the school awarded him the honorary degree, Doctor of Philosophy in Metallurgy.

Mr. Richmond is survived by his widow, Wilda, four sons, Robert E.; Charles A.; Kenneth D.; Harry H., Jr.; and by his mother, Grace; a sister, LaDessa Richmond, and a brother, Charles E. Richmond.

Valley Iron Works Elects Vice Presidents

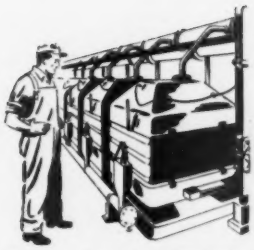
Paul Boronow has been elected vice president in charge of sales and Don DeNoyer, vice president in charge of engineering, for Valley Iron Works, Appleton, Wis., according to Ray A. Peterson, president.

Talbot "Pete" Peterson, son of Ray, was assistant secretary.

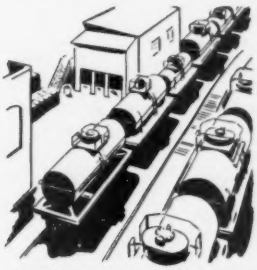
Mr. Boronow, born in Montreal, graduated from McGill and joined Valley in 1929. Mr. DeNoyer, a U. of Wisconsin grad, was with Beloit Iron Works until about two years ago. Talbot Peterson, in sales work, recently visited Southern California mills when he went to Long Beach, Calif., for a Reserve Officers convention. He was a captain in the army in Europe in World War II. Harold Norsen, of Valley sales, visited mills in the Pacific Northwest.

Wood Resources Use Discussed at Madison

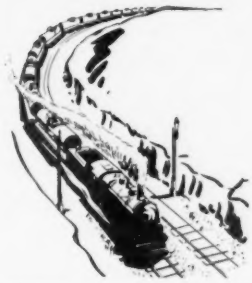
Ralph G. DeMoisy, technical director of the Washington State Institute of Forest Products, has just returned from the U.S. Forest Products Laboratory at Madison, Wis., where he conferred on processes for utilizing Washington's unused wood resources with Dr. J. Albert Hall, director; Dr. Edward G. Locke, head of the division of derived products; Alfred J. Stamm, of the laboratory staff, and others. Findings will be reported this fall in the Institute's "New Wood-Use Series." Individual inquiries are encouraged at the Institute office, 303 Anderson Hall, University of Washington, Seattle 5.



PURITY . . . From the efficient Hooker "S" Cells we produce chlorine and caustic soda of a uniformity that enables you to keep bleach preparation methods constant, for consistent bleaching results.



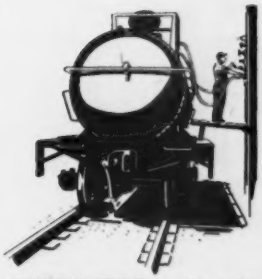
PACKAGING . . . Hooker Chlorine and Caustic Soda are shipped in specially conditioned tank cars, carefully inspected before shipment to guard against leakage and give you trouble-free, safe unloading.



DELIVERY . . . Schedules are planned to meet your production needs. Shipments are checked from point to point en route to insure compliance with delivery schedules.

You Get More than Chemicals When You Buy from *HOOKER*

SERVICE is one of the most active ingredients in Hooker Chemicals. Hooker is a compact, flexible organization of experienced people, geared to serve your needs quickly and competently. Briefly, these are the "added dimensions" that follow the shipment into your plant, helping you make the most of the Hooker Chemicals you buy.



TECHNICAL SERVICE . . . offers assistance on problems of unloading, handling, and processing to enable you to use Hooker Chemicals most efficiently, economically and safely.

MODERN RESEARCH . . . backed by years of experience serving the pulp and paper industries, works constantly to find better ways of producing chlorine and caustic soda for paper making.

SEND FOR THIS HELPFUL DATA ON BLEACHING

BULLETIN NO.

201 Process and Equipment for Making Bleach Liquor for Use Without Settling

211 Chemistry of Bleaching Chemical Wood Pulps

214 What Do We Know About Bleaching?

236 Importance of pH and Catalysts in Bleaching Operations

242 Production and Use of Unsettled Bleach Liquor

243 Procedures and Brightness Grades in Bleaching Sulfate Pulps

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

2 UNION STREET, NIAGARA FALLS, N. Y.

NEW YORK, N. Y. • WILMINGTON, CALIF. • TACOMA, WASH.

HOOKER CHEMICALS®

10-2709

SODIUM SULFIDE • SODIUM SULFHYDRATE • SODIUM BENZOATE • CAUSTIC SODA • MURIATIC ACID • PARADICHLOROBENZENE • CHLORINE

NEW WASTE LIQUOR USE PROCESS

A system for concentrating waste liquor by refrigeration has been developed and patent applications completed by George R. K. Moorhead (shown in picture), sulfite superintendent of Oregon Pulp & Paper Co., Salem, Ore. This liquor concentration process, essentially one of multiple heat transfer, removes heat at specific points and constructively utilizes the resultant heat energy at other processing points.

Mr. Moorhead developed the system from the premise that concentration of liquor by freezing can be effected more economically than by addition of heat to arrive at a like concentration through evaporation processes.

The Moorhead refrigeration process makes extensive use of heat transfer to concentrate pulp liquors by removing half, or more, of the whole in form of ice and the resultant ice reused as an agent for cooling the hot dilute liquor. Thus, the ice changes to clear, chemical-free water as a result of the heat exchange and this water can be reused in pulping processes or freely discharged as sewage without adverse effects.

The resultant remaining liquor, concentrated to 50 per cent solids, is said to be suitable for use as fuel, thus utilizing the contained wood components and making possible the recovery of some chemicals.

In this concentration-by-refrigeration process, practically a continuous flow, the dilute liquor goes through a refrigeration system removing most of the water in form of ice. Concentrated liquor adhering to the ice particles can be removed or separated by centrifuge, skimming, or other means.

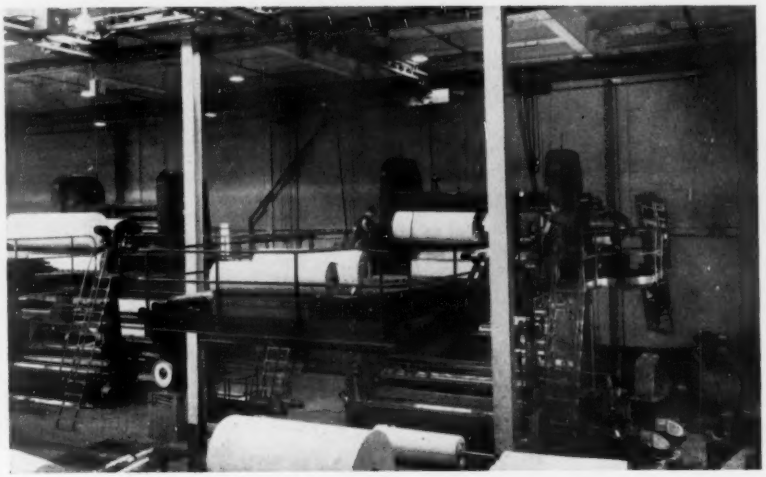
Mr. Moorhead says, "The evaporation process is not always practical because of the excessive energy expended. Equipment used in the evaporation process is subject to excessive corrosion. Consequently high-cost corrosion resistant materials are required for handling waste liquors when concentrating by application of heat. In the refrigeration process the low temperature of the liquor minimizes corrosive actions of the contained chemicals. Hence the equipment built of less expensive materials can be successfully used in concentrating waste liquors by refrigeration."

The system uses counter-current flow for concentrating liquor through heat exchanges. Hot liquor entering at intake end of system heats the refrigerant medium, and then may be further cooled by finned pipes or water (unless the heat is otherwise utilized), and then chilled by the system's by-product ice, thus extensively reducing temperature of the dilute liquor prior to reaching the refrigerating stage.

From a theoretical point of view, concentration of water by absorption type refrigeration has a relative thermal efficiency advantage over evaporation of about 3 to 1. Compression type refrigeration, although perhaps not as functionally suitable for efficient operation in the individual plant, shows even higher ratio advantage over evaporation from theoretical standpoint.

The theoretical, relative thermal advantage of absorption type refrigeration over evaporation considers only actual energy expended. Since this process derives a portion of the energy from the heat of the waste liquor, and utilizes the ice manufactured for refrigeration of additional waste liquor, the overall advantage of the entire process is much higher than is at first assumed, it was explained.

SUPER DRIVE USED AT MAINE MILL



MODERN IMPROVEMENTS in super drives for supercalenders, as described in this article, are illustrated in this photograph of the Appleton Machine Co. (Appleton, Wis.) 145 inch supercalenders with Westinghouse drive installed at S. D. Warren Co.'s paper making operations at Cumberland Mills, Maine.

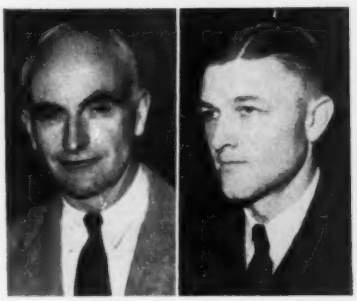
Super drive improvement for an Appleton Machine Co. 145-inch supercalender at the Cumberland Mills in Maine of S. D. Warren Co. is providing higher production with less physical labor. Westinghouse Electric Corp. supplied the drive mechanism and equipment.

The older method provided a drag on the unwind stand by a friction brake, and the power to drive the windup stand from a slip belt arrangement from the main drive for the rolls themselves. Tension was anything but constant. And friction devices meant high maintenance.

Here, the unwind and windup are separately powered, much in the manner of skin-pass steel-strip mills. Their action is inter-related so that during starting, running and stopping—with the diameter of paper (and inertia) on each roll constantly changing—the unwind generator holds back just enough and the windup motor pulls just hard enough to maintain uniform, constant tension in the paper sheet. Also because the unwind braking generator can be operated at slow speed as a motor, threading the end of a new sheet through the calender rolls is enormously facilitated. No longer does it have to be cranked off by hand.

On this new supercalender at Cumberland Mills the finished paper is wound onto a core that rests between two powered drums instead of directly onto a single motordriven roll. With this method of windup the paper can be trimmed as it emerges from the supercalender and wound directly on shipping core. On other drives the supercalendered roll is wound on mill cores, necessitating rewinding prior to shipment.

Canadian Mill Men



WILLIAM A. BAIN (left), who heads new Central Engineering Dept., Vancouver, B.C., for Alaska Pine & Cellulose Co. He was Manager at Woodfibre mill. **JOHN GUTHRIE** (right), promoted from Superintendent to Manager at Woodfibre, B. C.

Offices and representatives
in 40 cities in the United States,
Europe, Latin America, Africa, and Asia

WOOD PULP

PAPER

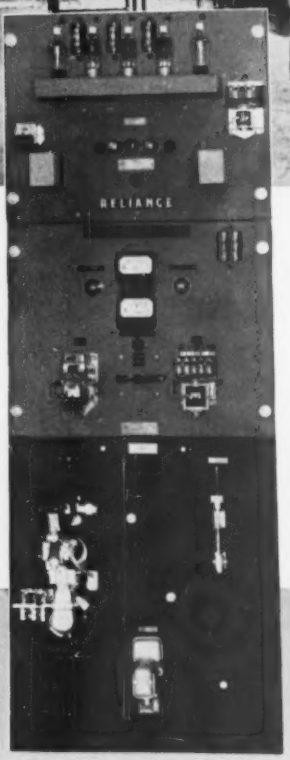
BULKLEY, DUNTON & CO., INC. • BULKLEY, DUNTON PULP CO., INC. • BUNNET, DUNTON PAPER CO., S. A.
BULKLEY, DUNTON CELLULOSE EXPORTS, INC. • BULKLEY, DUNTON PAPER (FAR EAST) CO., INC.
In New England—CARTER, RICE & CO. CORPORATION

BULKLEY-DUNTON
ORGANIZATION
285 MADISON AVENUE, NEW YORK 17, N. Y.

RELIANCE Sectional

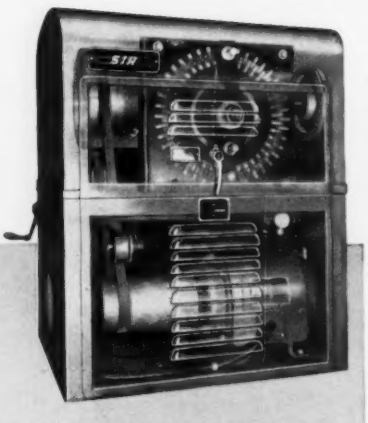
Maintain dependable, precise speed relationships

Reliance Sectional Drive controls this book machine which not only forms and coats, but also supercalenders the sheet in one continuous operation.



Simplicity is keynote of typical Reliance individual section panels for modern paper machines.

RELIANCE SIR (SECTION INTERLOCK REGULATOR)



Reliance Sectional Interlock Regulator holds draws accurately at all speeds, is rugged, compact and dependable.

The Heart and Brain of the Drive!

Supplied as an integral part of each drive motor in the system, the Reliance SIR is a simple, mechanical gear type differential regulator. Governed by a master speed reference for the entire motor drive, the SIR maintains the exactly correct speed relationship between sections. Compensation for shrinking or stretching of material can be made from the front or back side of the machine by means of speed adjustment of a Section Motor. Compactly designed and ruggedly built, the SIR has achieved a reputation for long, trouble-free service in a wide range of co-ordinated industrial processes requiring extremely accurate synchronization of motor drive speed.

"MOTOR-DRIVE IS MORE THAN POWER"

Paper Machine DRIVES

between all the sections of any paper machine...

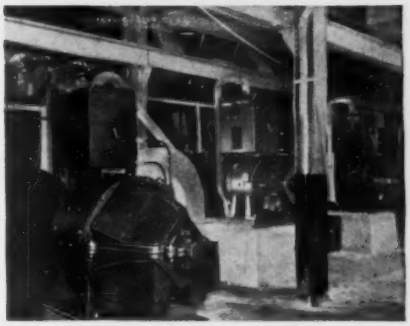
Use of Reliance Sectional Drives reduces down time to provide maximum tonnage and profits. Above: 236" high-speed newsprint machine.

...the co-ordinated drives you can depend on for maximum production of paper of UNIFORM WEIGHT and QUALITY!

Employing a principle which has been tested and proved for years in more mills than all other systems combined, the Reliance Sectional Paper Machine Drive provides unsurpassed ease, accuracy and dependability of control over the paper-making process through all sections of any machine. Here is the simplest, most practical and economical means of maintaining precise speed relationships and correct draw adjustments between all sections.

Reliance Sectional Paper Machine Drives are planned to suit the individual application by specialists backed by the Reliance experience of nearly 50 years in engineering co-ordinated motor drives. They are equally effective on the largest board machines, on wide, high-speed news machines, on fine paper machines. And a versatile mechanical "brain", the Reliance (SIR Section Interlock Regulator), makes each Reliance-engineered drive readily adaptable to all practices and conditions in the operation of any machine.

When purchase of a new machine is being considered or planning for a change-over to sectional drive is begun . . . it will pay you to have all the facts on how a Reliance Sectional Paper Machine Drive can pay you important dividends through maximum sustained production and low-cost performance. Call in a Reliance Application Engineer.



Three Reliance SIR Regulators mounted integrally with Reliance Type "T" Heavy Duty D-c. Motors on Sectional Paper Machine.

RELIANCE ELECTRIC AND ENGINEERING CO.

1105 Ivanhoe Road, Cleveland 10, Ohio • ***Sales Representatives in Principal Cities***

COMMENTS ON HOLLIS'S ARTICLE

On Stock Formation on Cylinders

In our last issue, we published an article "Stock Formation on Cylinders," written by R. Frank Hollis, general superintendent, Alton Box Board Co., Alton, Ill.

A great deal of valuable information was given in the article for paperboard manufacturers, but it was written in the form of a questionnaire to stimulate thought on the subject. For that reason, and with Mr. Hollis's approval, we invited authorities in that field to the questions he raised.

One of our first responses was from Philip H. Goldsmith (shown in picture), who is sales and development engineer for Pusey & Jones Corp., Wilmington, Del. Here are his comments:

"An article of the type written by Mr. Hollis is most valuable in stimulating thought. No one will disagree with him to the effect that the best equipment in the world will still require 'the artful manipulation of the machinetender.'

"The following comments refer to the questions as numbered by Mr. Hollis (September, 1950 issue):

3B—"The question of the number and diameter of cylinder molds for a given installation must take into account the number of different types of stocks which must be formed. For example, a machine making folding grades using four different stocks would necessarily need a top liner, underliner and a back liner vat. The total number of vats required would, therefore, depend upon the forming capacity of each filler vat with less to customary filler stock such as mixed papers.

4D—"We believe that the flexible type of adjustable vat circle is the most successful means for varying the vat circle velocities. It is more uniform and trouble-free than dampers or other similar devices.

4E—"We find that vat circle clearances must be different for different stocks, sheet weights and machine speeds. This is especially true of direct-flow vats.

4F—"Vat circle clearances do not appear to be as critical in counter-flow vats as they are in direct-flow vats. It would be possible under certain conditions for the circle clearances of a direct-flow vat to be suitable for feeding the vat in the opposite direction.

4G—"We believe that vats should have sandtraps. This is especially true of vats which are to use dirty stock such as mixed papers, etc., such as used for filler stock of many types of board and for roofing felts. In the case of vats with an outer as well as an inner vat circle, this sandtrap is located in the outer vat circle where it cannot adversely affect the formulation.

5B—"It has been found that the presence of excess entrained air will make the flow in the vat wild and will adversely affect the formation of the sheet. For this reason we make every effort to exclude air from the vat system and to permit air to escape from it.

5D—"We consider it good practice to draw the white water from both sides of the cylinder mold and make our outlet connection to the suction of the vat pump at the centerline of the machine. In addition it is also considered good practice to have the spill gates at the front and back of the vat at the same elevation so that the same amount of excess water will run off to the front as it does to the back. If these two things are not done, it is possible to affect the weight of the sheet across the machine.

6A—"Tests have shown that the spokes in a cylinder mold will create disturbances in the white water inside the cylinder mold which produce disturbances in the formation of the vat. Anything which will reduce this disturbance is a benefit especially on wider and faster board machines.

6C—"We have developed a spokeless type of cylinder mold in order to eliminate the spoke disturbance and also to permit the use of vacuum in formation. A considerable number of these cylinders are now in operation or under construction. They have no spokes. They are supported by through shafts which as far as it has been possible to ascertain have no adverse effect on the formation. They are considerably more open to drainage at their face than are conventional cylinder molds. Instead of round parallel bars they have forwardly pitched vanes which are reduced to a thickness of $\frac{1}{8}$" at the circumference of the cylinder.

8E—"Where the face wire is to be brazed, we prefer Monel face wires to stainless steel. In the case of stainless steel face wires we sew them.

13B—"We prefer to have the vat pump located in the basement with a sufficient suction head to insure steady operation. With the increase in the number of vacuum pumps required on many machines, a suitable basement under the wet end becomes more and more of a requirement.

14D—"Cylinder mold ends seals are a troublesome item. Most of the garter strap seals are likely to give trouble. This is true even when they are made with very flexible backs. It is for this reason that operators very often substitute felt strips for practically all types of seals which are in general use. The difficulty is usually that stock or dirt may collect under the seals and exert a strong breaking action. This can increase the drag which the cylinder mold exerts against the felt and the sheet and can lead to discernible disturbance in the formation of the sheet. It can also lead to the wrapping of the cylinder. Because of the increasing use of vacuum cylinder molds, we feel that any cylinder mold seal should also permit the use of vacuum to a considerable degree, say to the extent of a maximum of 7" to 10" of mercury. This has made the old collar or garter strap type of cylinder seal seem to be the most dependable but it is far from satisfactory."

Hollis Article Used For Mill Meetings

One of the first comments to be received by PULP & PAPER on last month's article by R. Frank Hollis of Alton Box Board on stock formation on cylinder machines was from Marvin N. Stone, of Chicago, executive vice president of Stone Container Corp., with mills at Franklin and Coshocton, Ohio, and general manager of Stone-Mann Paper Co., Mobile, Alabama. He said:

"I find the article quite illuminating and thought provoking. It is sure to stimulate thinking and as a result of it many comments and discussions will arise in the paper industry.

"It is my intention to forward this article to our General Manager of Mill Operations, with the purpose of utilizing portions of this article in his meetings with his tour bosses and foremen.

"Undoubtedly a great many of the questions that Mr. Hollis asks are merely questions for stimulating the thinking of his readers. It certainly should do so in our case. Possibly it will lead to our utilizing some of his questions and thoughts in some of our future research and development."

Pilot Odor Plant At Bloedel Mill

A pilot plant has been built at the kraft pulp mill of Bloedel, Stewart & Welch, Ltd., at Port Alberni, B.C., for carrying out a series of experiments designed to eliminate odor from the sulfate process. The project represents a continuation of preliminary work done at the Bloedel mill and at the Harmac kraft mill of H. R. MacMillan Export Co.

The British Columbia Research Council is in charge, with the guidance and advice of Prentice Bloedel and J. Petrie, of Bloedel; D. H. Baker, Harmac, technical director.

The basic investigation of black liquor oxidation was undertaken several months ago. During the year attention was given to other procedures, such as those involving mechanical means, such as foaming of the liquor followed by foam breaking. Treatment with new synthetic resins has also been examined.

High Yield
High Quality!
The extra 20% you get from your wood with the Sutherland High Yield Sulphate System is vitally important from the standpoint of economy and conservation. But just as important is the fact that you can get this increase in yield and still maintain high quality. Without exception, the mills using Sutherland Systems have found that high yield pulps are just as good as their low yield pulps ever were and, in many cases, are definitely superior.
We'd like to tell you how you can get *quality* pulp in your mill at lower cost. Our advice is yours for the asking —write or wire us today.
SUTHERLAND
continuous beating systems

Designed, Engineered, Serviced

by SUTHERLAND REFINER CORPORATION

TRENTON 8, N. J.

MODERNIZING SUPERCALENDERS

SPEEDS TRIPLED WHILE QUALITY IS MAINTAINED

By Roy Nelson, Power Supt., and
Ray Schmalz, Supercalender Foreman, Thilmany Pulp & Paper Co.

When, as happened not so long ago in our company, the need developed for more supercalendering capacity for glassine and waxing papers, a number of things had to be considered before a satisfactory solution could be reached.

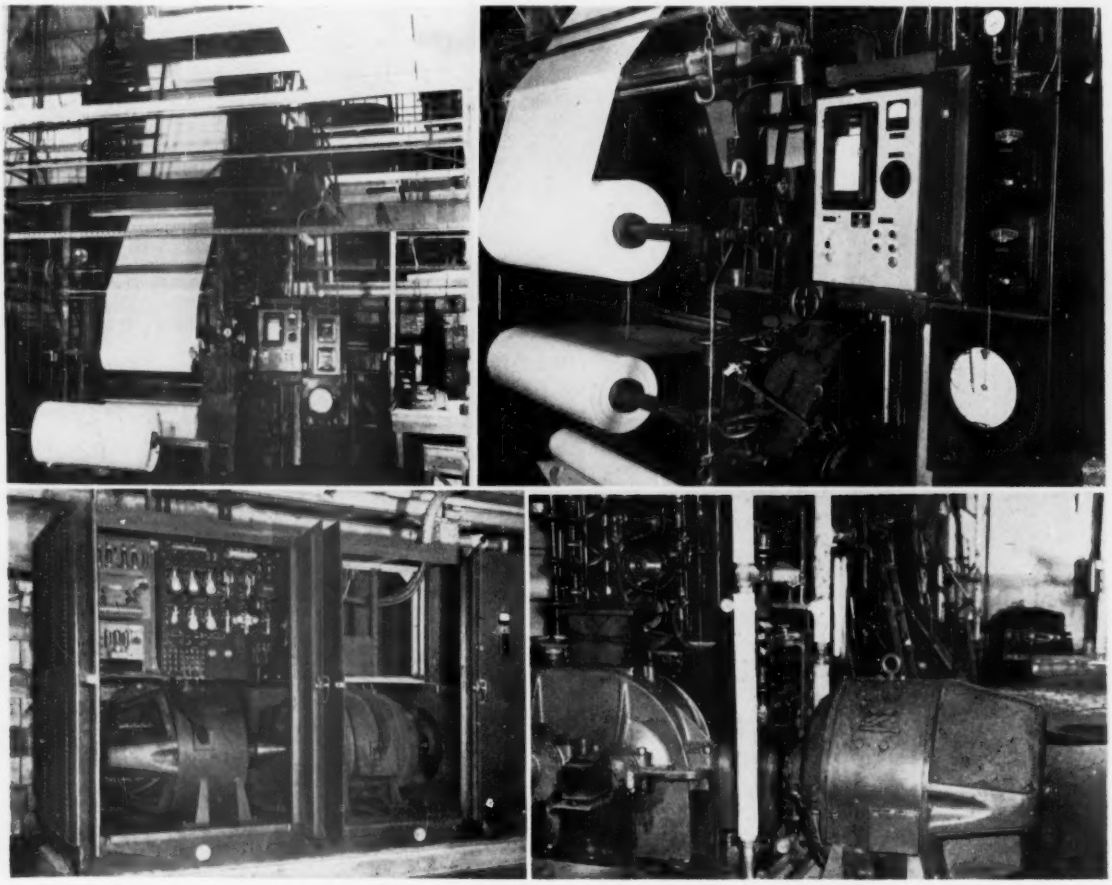
More than once in the intervening years, serious consideration had been given to the purchase of new equipment. Factors weighed in arriving at a decision had included not only those of cost and availability; but whether with a substantial increase in supercalendering speed the high quality required of particular sheets could be unvaryingly maintained.

The simplest and quickest way to obtain the increased output was, of course, to purchase new equipment whose automatic features, higher operating speeds and controlled accuracy would provide so much more in the way of finished product per manufacturing dollar.

However, in addition to cost, there was the other equally important consideration to be resolved—could new equipment actually be obtained and installed within reasonable time?

The decision to rebuild rather than replace existing stacks proved the wiser one, for, as it developed, there would have been a two-year wait for new equipment. This was too severe a handicap.

Our management and engineers of the mill concentrated on exploring what could be done to modernize our old stacks. These, while in good physical condition, thanks to an excellent maintenance program, had up to that time, operated at a maximum speed of 400 f.p.m. This speed, considered tops when the stacks were



PHOTOS COURTESY RELIANCE ELECTRIC & ENGINEERING CO. Top left—Modernization of 73-in. supercalender at Thilmany included installation of anti-friction bearings and a 200 hp. Reliance variable voltage (V*S) drive. To conserve space right angle drive was used.

Top right—All desired functions are controlled by pushbuttons which, with direct reading speed recording instruments, are on panel convenient to operator. Duplicate pushbuttons installed elsewhere about frame permit control from more than one point.

Lower left—Close-up of interior of Reliance VSC control unit reveals generator (lower left) relays contactors and electronic components of control circuits which are part of modernized drive. All wiring within cabinet was completed at factory.

Lower right—Close-up of 200 hp. Reliance motor and right angle drive, direct coupled to bottom roll of stack to eliminate open gearing and clutches and save considerable floor space. Note anti-friction bearings, designed to fit existing ways of frame.

IMAGINE...

America without paper!

No more paper! No paper cups, plates, containers, or protective wraps. No paper napkins . . . not a single waxed paper bag. What happens, then, on the *food front?* Mobile food units would fail to serve industry . . . canteens would close overnight. And a lack of packaging materials . . . labels, liner boards, parchments, wrappers for frozen foods . . . would affect virtually everyone. Foods today are processed at the peak of their perfection . . . served with utmost convenience, under sanitary conditions. But it takes paper to help make this possible. Daily, in countless ways, America *depends* on paper! Use it wisely . . . protect its production . . . keep American strong.

America depends on

PAPER

PREPARED IN THE PUBLIC INTEREST BY BELOIT IRON WORKS, BELOIT, WIS.
MAKERS OF HIGH-SPEED, HIGH-PRODUCTION PAPER MACHINERY SINCE 1858

CAN YOU USE REPRINTS? This is one of a series of messages Beloit is running in Fortune Magazine to remind the U. S. of paper's importance. Reprints for bulletin boards and mailing available. Write to Beloit Iron Works, Beloit, Wis.

originally installed, had been far outstripped by newer machines having heavier frames, anti-friction bearings, etc. There was no way of knowing how well these stacks, now 15 years old, would stand up when speeds were doubled or perhaps trebled.

Thilmany engineers went to work and, aided by application engineers of The Reliance Electric & Engineering Co., successfully modernized the first of two supercalenders, a 73-inch, 16-roll stack with sleeve bearings throughout and with a modified hydraulically-operated leverage pressure system capable of producing approximately 2000 lbs. pressure per inch width on the bottom nip.

The additional power required to operate the stack at the higher speed was obtained by installing a new 125 hp. Reliance motor drive; but no change in the original sleeve bearings of the stack was made other than to provide better alignment. With the top speed of the stack set at 750 f.p.m., lubrication of the sleeve bearings did, however, become more of a problem.

When the stack was first put into operation with the new drive, it operated nicely up to 750 f.p.m., and there was no change in the high quality of the sheet. Optimism ran high among those involved in this program since it was felt that speeds considerably higher than 750 f.p.m. might now be possible.

A further increase to 815 f.p.m. was actually obtained from the Reliance variable voltage drive, the higher speed putting a load of approximately 140 hp. on the 125 hp. unit. This gave rise to further optimism, since it was now felt that speed of 1000 or possibly 1200 f.p.m. could be obtained with the old equipment.

Speeds above 815 f.p.m., however, presented serious problems with the sleeve bearings in the stack. Although no undue maintenance difficulties had been encountered, bearing temperatures and roll alignment indicated that for higher speeds the bearings would have to be changed.

A decision, therefore, was made to equip the rolls with anti-friction bearings. At the same time, load tests were run on the stack in conjunction with Reliance engineers, and an order for a new 200 hp. variable voltage (V*S) supercalender drive was place on the basis of operating the stack up to 1200 feet per minute.

The actual change-over was not difficult to accomplish. The existing reducer, equipped with new gears of a lower ratio, fully met the mechanical requirements of the larger drive. Reliance supplied a 200 hp. motor with the same mounting dimensions as the initial 125 hp. unit and consequently it was not necessary to remove the reducer-motor plate from the floor. The 200 hp. motor-generator set and control were supplied in cabinet construction which the mill installed in the basement under the stack. Consequently, the wiring involved only the conduit runs between the cabinet, the motor, and the operator's panel. Down-time was minimized during this change-over by scheduling much of this work to be done ahead of time.

One by one, the rolls in the stack were equipped with anti-friction bearings with the exception of the top and bottom rolls. The journals of these two rolls were of such a diameter as to prevent installation of anti-friction bearings without further separating the columns. The anti-friction bearings were designed and supplied by The Hewitt Transmission Co., Neenah, Wis., in such a way as to fit into the same guides on the column as the old sleeve bearings. Bearings were installed roll by roll on the stack with no loss of operating time. No bearing difficulties of any type have been experienced to date.

At the present time this stack is operating at speeds up to 1300 f.p.m. The load on the stack has decreased with the anti-friction bearings on the intermediate rolls and the alignment is so much better that serious consideration is being given to the possibility of further increasing the operating speed up to 1500 f.p.m. Thilmany is assured by Reliance engineers that the drive will handle the stack up to this higher speed if a further change in the reducer ratio is made.

Meanwhile, another stack, 58 inches in width and of similar construction to the larger machine, has been modernized for 1200 f.p.m. operation by transferring to it the 125 hp. Reliance drive formerly used on the 73-in. stack. The 58-in. stack has likewise been converted to anti-friction bearing construction, and is successfully operating at speeds up to 1300 f.p.m. The operation has been so satisfactory that, here again, consideration is being given to changing the gear ratio in the reducer to raise the maximum speed of the stack to 1500 f.p.m. All indications point to successful operation, and it is not anticipated that the existing top and bottom roll sleeve bearings will give any difficulty at the higher operating speed.

Anti-friction bearings on the intermediate rolls have reduced the bearing losses in the stack and at the same time have insured better roll alignment. This is probably the major factor in getting successful operation at the higher speeds. Modern drive equipment has been another important factor in eliminating vibration and strain on the stack itself which was in evidence with the old slip ring motors with double clutch and back gearing previously used to obtain threading speed. With the existing drive, continuous operation from a threading speed of about 40 f.p.m. minute to the maximum operating speed of 1300 f.p.m. can readily be obtained. Acceleration, deceleration, and emergency stopping do not place any severe or peak strain on the stack. The operator's controls are much simplified with all functions of the stack controlled through pushbuttons. The 125 hp. drive is controlled by a motor-operated-rheostat through "fast" and "slow" pushbuttons.

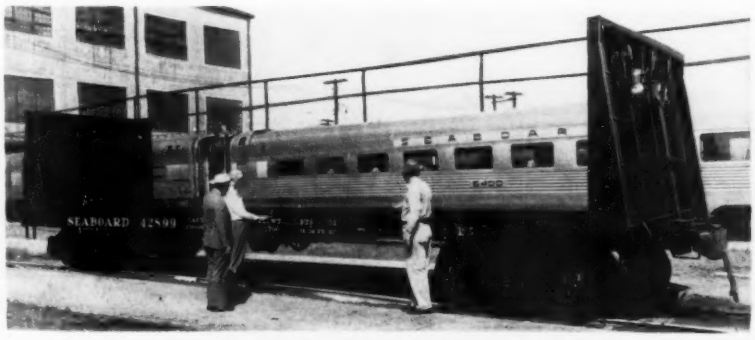
The 200 hp. drive is equipped with an electronic speed control which is automatically sequenced from the operator's pushbuttons. A speed setting dial permits the operator to set the top speed of the stack at will. Jogging, threading, acceleration, deceleration and quick stopping are automatically controlled by pushbuttons mounted on the operator's panel with additional buttons located on the frame of the stack for the operator's convenience.

There is no doubt in our minds that our speed-up program has been an unqualified success. These two supercalenders are operating three times as fast as originally intended. Production rates have tripled and quality has been maintained. The operator's efficiency has also increased and down-time has been reduced to a minimum. The new drives offer the maximum in operator's convenience and this factor alone is important in attaining higher production.

Forest Products Society

The Forest Products Research Society has announced its 6th annual national meeting will be held in Milwaukee, Wis., June 23, 24 and 25, 1952. Upwards of 1,000 persons are expected to be in attendance at the program which will include presentation of technical papers on a wide range of forest products subjects.

Seaboard Adds Pulpwood Rack Cars



WITHIN THE PAST MONTH the Seaboard Air Line Railroad completed a $2,800,000 program resulting in addition of 800 all-steel open pulpwood rack cars to its equipment serving the many pulp and paper mills on its lines. The program brought the total number of open rack cars to 3008. The growth of this industry in the south is demonstrated by the fact that 15 years ago SEABOARD did not haul 3000 carloads of pulpwood a year. In 1950, the railroad moved 101,452 cars of pulpwood. The open rack cars permit rapid, low cost loading and unloading. The new cars were built in the carrier's shops at Portsmouth, Va.

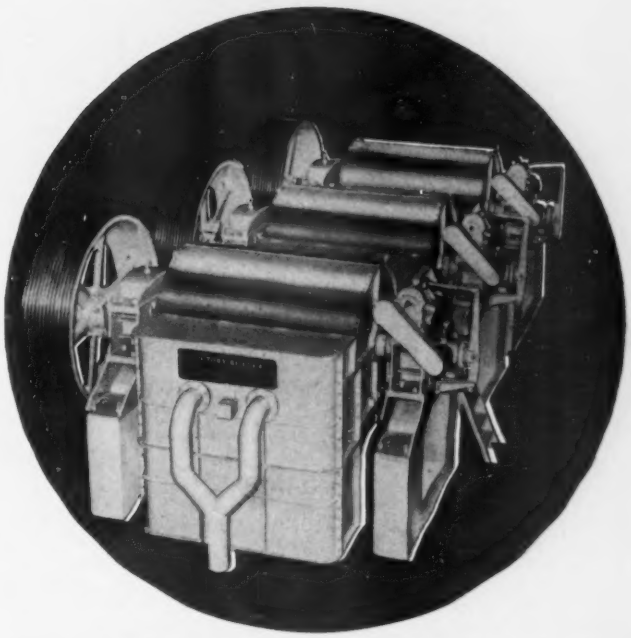
1000 GALLONS PER MINUTE!

EXCLUSIVE FEATURES OF THE VICTORY BEATER

1. *Controlled Flow — uniform, positive fibrillation*
2. *Pressurized bedplates*
3. *Absolute control up to 40 tons bedplate pressures*
4. *Centralized bedplates assure 100% roll-bedplate contact*
5. *Highest effective inch cut potential*
6. *Horizontal roll oscillation makes bars self-honing*
7. *Lowest maintenance cost*
8. *Tailored-to-your-plant, low-cost installation*
9. *Spherical, anti-friction roller bearings*
10. *1000 gallons per minute capacity*
11. *Highest quality, high tonnage production*
12. *All-time record for continuous production!*

*VICTORY BEATERS are made in two styles: (a) **Single Roll** units for handling batches as small as 500 pounds. (b) **Multi-Roll** units with two, three or more rolls for treating 100, 150, 200 or more tons per day on a continuous production basis.*

Write, wire or phone today for complete details. Ask for Booklet PP 1051



It might not take 100 GPM to put out the "fire" of production demands, but if it should, the *Controlled Flow* VICTORY BEATER* will deliver it!

The VICTORY BEATER is built to meet any stock treatment and production requirements. Any number of rolls may be installed in a series, and the flow of stock can be regulated to yield any desired tonnage of any desired furnish of properly treated stock up to 1000 GPM per pass.

Designed for mills where quality, volume and power are critical factors, the Controlled Flow engineering of the VICTORY BEATER makes it superior to any similar refining equipment in economical, high quality, high tonnage, continuous production.

*Patents issued and pending.

THE NOBLE & WOOD MACHINE CO.

Paper Mill Machinery

HOOSICK FALLS • NEW YORK • U.S.A.

Mid-West: Ronningen Engineering Sales • Vicksburg, Mich. West Coast: Dan E. Charles Agency • 706 Jones Bldg. • Seattle 1, Wash.

Thilmany Many-fold Modernization Is Moving Along; Wood Room Savings are Reckoned $100,000 Annually

The general over-all modernization program is rolling along at a speedy clip. A new Beloit Irons Works 137-in. glassine Fourdrinier machine which will triple the glassine output (replaces two old machines) from that Wisconsin mill is a major impelling factor in calling also, for the tripling of the supercalendering production, as described in this accompanying article by Roy Nelson and Ray Schmalz of Thilmany.

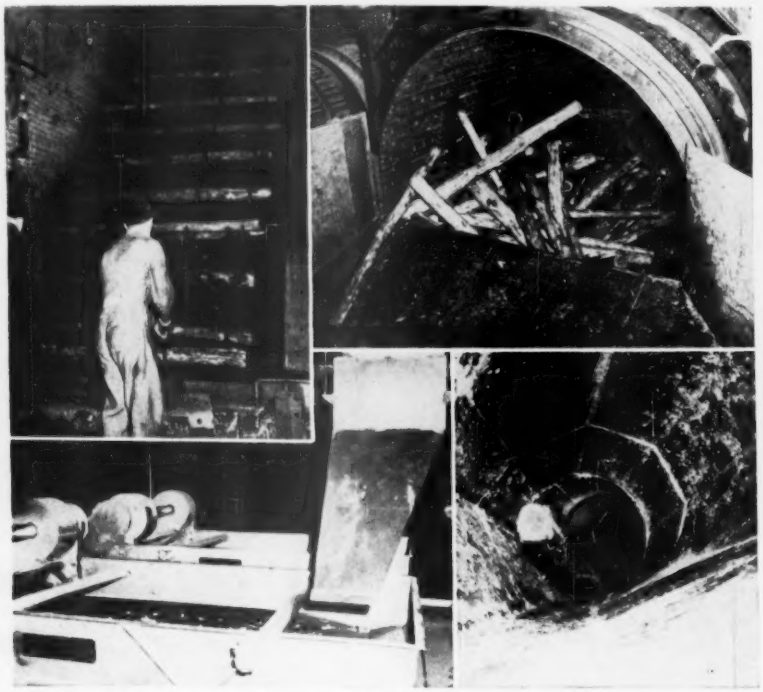
Three Swenson Evaporator Co. 35-ton brown stock vacuum washers were installed in a new building this past summer for a new brown stock washing system. Trucks with automatic winches hoisted the huge drums 50 ft. to operating level. Addition of power plant and turbine room with 6,000 kw. General Electric turbo-generator; the engineering done by Pfeifer & Schultz of Minneapolis is an important phase. A Kidder 4-color printing press is an important new unit.

First phase of the program completed was the new wood room and wood preparation system. A "hot pond" for pre-treatment; a new Fibre Making Processes 12 x 45 ft. drum barker; and an 88-in. ten-knife D. J. Murray Mfg. Co. chipper were installed. Photographs with this article show the wood handling and preparation equipment.

The new "hot pond" 50' x 250' x 8' deep puts into operation a more economical method of bringing the wood to the wood room. The four-hour soaking period that the logs receive, softens the bark, and removes much of the dirt. Waste water, from the evaporators in recovery plant, is pumped into the pond at 70° temperature. The waste water, circulating by means of a pump, carries the floating logs to a jack ladder.

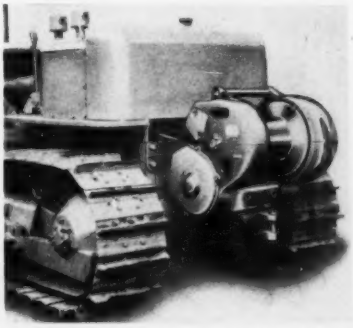
The new D. J. Murray chipper is equipped with ten knives that whirl at 360 revolutions per minute, producing 3,600 cuts per minute as the eight foot logs slide down to be cut into $\frac{5}{8}$ inch chips.

Handling of logs in 8 ft. instead of 4 ft. lengths has produced savings, by eliminating wood loss in sawing and by reducing the number of ends by one half. This means less oversize end chips. The chipper has doubled the amount of chips that can be produced in the same period of time. Thilmany is one of only two mills in the country to process logs in 8 ft. lengths. With stepped up operation in wood room, digester yield has been increased. The new wood room will save $100,000 annually, Thilmany officials say, including reduction of shifts from three to two, and a reduction of manpower to half formerly required.



ADDITIONS AT THILMANY PULP & PAPER CO., Kaukauna, Wis.: Top left: Jack ladder carries wood to conveyor belt. Top right: Fibre Making Processes 12 x 45 ft. drum barker. Lower left: Chip screens. Lower right: Mouth of 88 inch multi-disc D. J. Murray chipper.

WILLIAM W. CAMPBELL Jr., (left), son of the late N. Y. Senator and Mrs. Wm. W. Campbell, has been named Assistant Sales Mgr. of Lockport Felt Co., Newfane, N. Y., serving with Bertram A. Audley, V. P. in charge of Sales, according to President Raymond J. Lee.
TANY AGRONIN (right), Chief Engineer of Shartles Brothers Machine Co., Middletown, Ohio, returned in September from a trip to South America in service of his company in connection with their installations and to study developments.



NEW CARCO "G" WINCH for logging and general construction fits tractors in the 80 to 120 belt horse-power range. New features include concealed cable controls, smooth braking action, and choice of gears for high or low range of line speeds.

New Carco Winch Offered Woods Industry

Concealed cable controls, a new toggle-type brake, and choice of standard or slow speed gears are features of an improved Carco "G" Winch announced by Pacific Car and Foundry Company, Renton, Wash.

The Carco "G," which has a 15-year service record as a heavy duty winch, appears in a new streamlined case. Exterior nuts and bolts are recessed. Drum flanges are shrouded to minimize cable damage. Other changes in case design increase the strength of the Carcometal casting, keeping weight to a minimum.

Cable controls, now standard on most winches in the Carco line, leave the tractor fender and winch case free of projections. Flexible cable controls permit a choice of locations for the control stand.

A new toggle-type, self-energizing brake gives the operator increased braking leverage and permits inch-by-inch lowering of the load. When released, it leaves the brake band completely separated from the drum. According to the manufacturer, this brake will hold any load the largest tractor can pull, and sets a new standard for smooth lowering of the load.

a new symbol of an old name

Rice Barton Corporation takes pleasure in introducing to you its new trademark which will henceforth appear on all Rice Barton business forms as well as on our papermaking equipment.

It is a symbol of rolls and frame, basic components of papermaking machines, and the horizontal line which represents the product — paper.

As you will appreciate, a company in its 114th year has not chosen its trademark impatiently or lightly. Heretofore, we have used as insignia only the familiar Rice Barton seal which will not be abandoned for its appropriate purposes. Primarily, however, the new insignia fulfills our need for a modern, readily identifiable symbol of Rice Barton equipment.

RB-1

RICE BARTON CORPORATION

WORCESTER, MASSACHUSETTS

AMMONIA BASE PROCESS

Evaporating and Burning at Lebanon

G. V. PALMROSE, Chemical Engineer, Soundview Pulp Co., and JAMES H. HULL, Manager of Process Development, Central Research Dept., Crown Zellerbach Corp., key men of pilot plant project at CZ's Lebanon, Ore., mill for evaporating and burning spent ammonia base sulfite liquor to recover heat and chemicals. This cooperative project is jointly supported by Soundview and Crown Zellerbach.

Late in 1949 Crown Zellerbach Corp.'s Lebanon, Ore., mill went to full ammonia base sulfite production. Results were sufficiently promising that Soundview Pulp Co. and CZ cooperatively installed a pilot plant at this mill to determine feasibility of evaporating and burning the spent liquor to recover heat and sulfur. Erection of the pilot plant started in the summer of 1950 and went into production early in 1951.

(A complete report on the cooking process at Lebanon—up to the point of evaporating and burning—was published on page 56, our July issue. This is a sequel to that article—an interim report on the further operations.)

Equipment installed for the project includes the necessary pumps, pipes and tanking for recovering spent liquor from blow pits substantially at digester strength—about 10% solids in this case; a Rosenblad plate-type falling-film evaporator, manufactured by General American Transportation Co., capable of concentrating liquor from 10 tons of pulp to 50% solids in 24 hours. At this concentration the liquor is utilized as fuel in a recovery furnace.

The furnace, modified from a hog-fuel dutch oven, has a horizontal tube Heinie boiler rated at 10,000 lbs. of steam per hour. Besides changing a dutch oven over to a furnace, an air pre-heater was installed in boiler breeching.

Flue gases pass through a direct contact cooling tower, after leaving the boiler, there cooled from 500 deg. F. to 100 deg. The cooled gases then pass into an absorption tower, giving up sulfur dioxide to a solution of ammonium sulfite-bisulfite solution at 6.2 pH. The resultant solution then goes to the acid plant for use in making raw acid.

Under proper temperature and pH conditions substantially all sulfur dioxide in the flue gases is recovered. However, there are some other sulfur losses tending to reduce the net sulfur recovery.

Findings indicate that concentrate ammonia base sulfite liquor burns readily at temperatures around 2000 degress F. when properly atomized.

James H. Hull, manager of process development, Central Research Dept., Crown Zellerbach Corp., and G. V. Palmrose, chemical engineer, Soundview Pulp Co., are in charge of this cooperative pilot plant project, each representing the interests of his respective organization.

Tuten Joins Potlatch as General Superintendent

Alvin Tuten, formerly of the Plymouth, N. C., and Georgetown, S. C., mills has been appointed general superintendent of the Lewiston, Idaho mill of Potlatch Forests, Inc., according to W. P. Davis, president and general manager of the company.

William P. Davis, president of Potlatch Forests, Inc., and longtime chief engineer and assistant production chief of International Paper in the South was formerly associated with Mr. Tuten in the Georgetown, S. C., mill of I. P. Mr. Tuten was there as aide to Mr. Davis when the latter built and put in operation the second big unit, making Georgetown at that time the biggest pulp and paper mill in the world.

WEST POINT IMPROVES EFFICIENCY

ERIK ZIMMERMAN, Gen. Supt. at Chesapeake Corp., West Point, Va.

Latest in a line of continuing improvements which have been made at Chesapeake Corp. of Virginia, West Point, Va., include installation of a modern bark boiler system; re-vamping of woodyard conveyors and equipping with rubber belt carriers from yard to barking drums; completion of a fourth stage of a kraft brown stock pressure washing system; and placement into operation of a flash-drying system for lime recovery.

The new bark boiler system was installed under the direction of Robert Ellwanger, chief engineer and superintendent of the power plant. Bark is hogged by a Mitts and Merrill hog, and is taken by Fairfield Engineering bark conveyor system to the Combustion Engineering boiler. Four spreader stokers, about 17-feet above the traveling chain grate stoker, are fed by 16 screws in units of 4 each, driven by Westinghouse "Mototrol" electronic rectifying units. The new system, plus two C.E. black liquor Recovery Boilers, generate about 63 per cent of power requirements of the plant with the balance generated through coal burning.

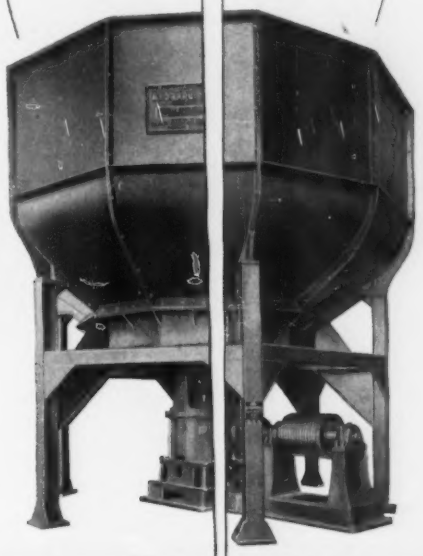
Tidewater Engineering Co. was the contractor for the woodyard conveying system which consists of four main conveyors with Goodyear Tire & Rubber Co. Style B belting. The two main conveyors are of 72-inch wide 7-ply belting, while the conveyor from the storage yard and the one bringing logs in from the barge derrick are 36-inches wide of 6-ply belting. The entire system contains approximately 1800 feet of conveyors.

The addition of a press to the existing three-stage system for pressure washing of kraft brown stock at Chesapeake sets up a four-stage system which reduces the amount of wash water and increases the total solids going to the evaporators. (This system as described in detail by Erik Zimmerman, general superintendent, and Henry Vranian, chief chemist, of Chesapeake Corp., at the Alkaline Pulping Conference of Tappi in Jacksonville, Fla., Oct. 25-27, 1950).

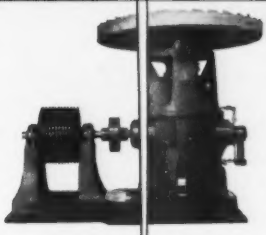
In the system of flash drying for lime recovery, waste gases are used for drying in a procedure developed by the Raymond Division of Combustion Engineering. This new system appears effective and was placed into operation this year.

Elis Olsson is chairman of the board and former president of the Virginia kraft mill and M. C. McDonald, formerly of Louisiana, is president and general manager. Rated at 375 tons of kraft liner and special kraft papers daily, it has a Pusey & Jones 242-in. Fourdrinier machine. In the pulp mill are four Bauer Bros. pulpers, nine digesters, wet machine and dryer.

Hydrapulper No. 1000 coming up



Several designs • Full range of sizes • Batch or continuous • Contact Shartle or Dilts



There is no mystery about the sales strength of a Hydrapulper.

In the first place everything acts and reacts in a vertical plane. (1) a firm base. (2) a heavy precision drive on that base. (3) a heavy, rugged rotor directly atop the drive. No side thrust. No stresses or strains—everything in a vertical plane.

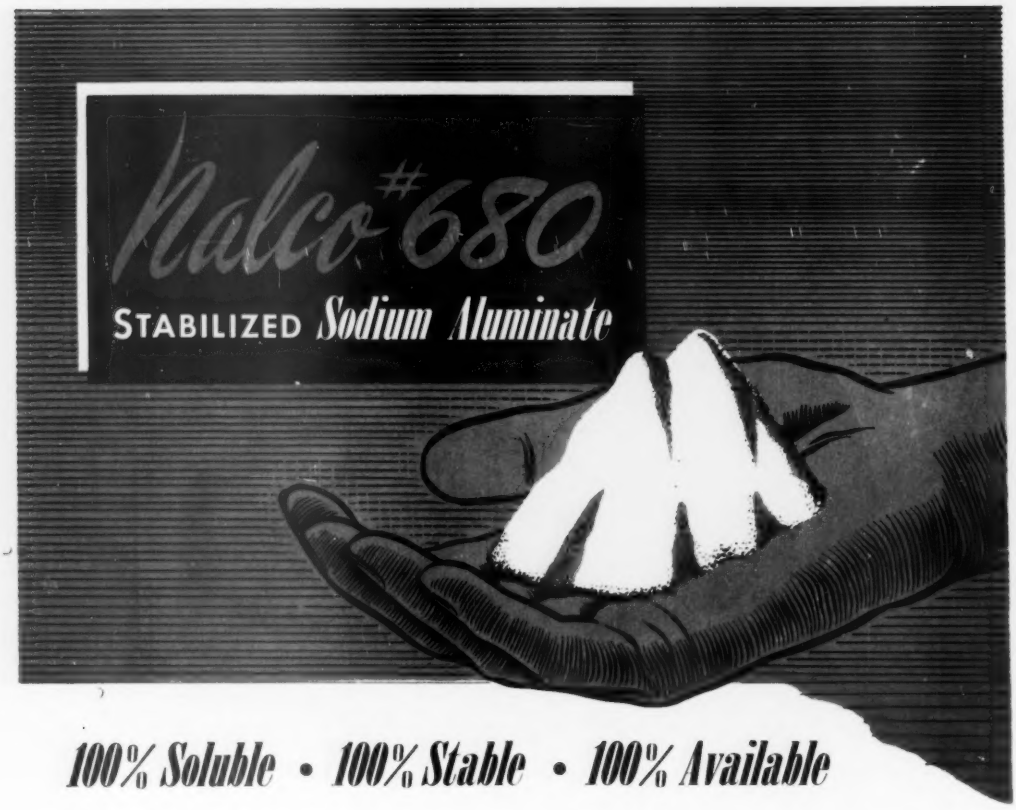
In the second place, the stock travels not sidewise but downward toward the rotor—gravity pull.

In the third place, the top is open, except when pulping under steam pressure, permitting entire bales of waste papers or rolls of virgin pulp to bounce up and down on the rotor until pulped. No strain on rotor or tub that might force something to snap.

In the fourth place, a Hydrapulper is the fastest, most thorough, most economical of all pulpers and almost every mill in the world knows it.

SHARTLE BROTHERS MACHINE COMPANY, MIDDLETOWN, OHIO

DILTS MACHINE WORKS, Fulton, New York • *Divisions of* THE BLACK-CLAWSON CO., Hamilton, Ohio
Western Sales Office: Mayer Bldg., Portland, Oregon • *Southern Sales Office:* 937 Coventry Road, Decatur, Georgia
Associate: THE ALEXANDER FLECK LTD., Ottawa, Ont. • *Subsidiary:* B-C INTERNATIONAL LTD., Greener House, Haymarket, London, S. W. 1, Eng.



100% Soluble • 100% Stable • 100% Available

NALCO 680 is *completely* soluble, *completely* stable . . . the one sodium aluminate that remains in solution as sodium aluminate and does not settle out.

Every ounce of Nalco 680 provides active alkaline alumina . . . always available for rapid reaction. That means reduced alum requirements, lower acidity, better sizing, better retention, and therefore, better products.

Read the results reported at right — then ask a Nalco Representative to show you how Nalco 680 can repeat them in your mill.

BOX BOARD MILL — Power Savings

"Machine tenders report much better sheet formation with Nalco 680, and that jordans can be cut back 10 amps. Machines are cleaner with no deposits on cylinders."

KRAFT MILL — Alumina Retention

"Improvement in sizing, better retention of alumina, and general texture of the sheet using Nalco 680 are very marked. Converter reports the sheet handles better."

SULFITE BOND MILL — 45% Less Alum

"Results using Nalco 680 at the rate of 5 pounds per ton have been good. Improved sizing and reduced alum so that 140 pounds of alum is being added per 4500 pounds of furnish, instead of the previous 250 pounds of alum. This enabled the mill to meet rigid pH specifications for the paper."

TISSUE MILL — Clean Machines

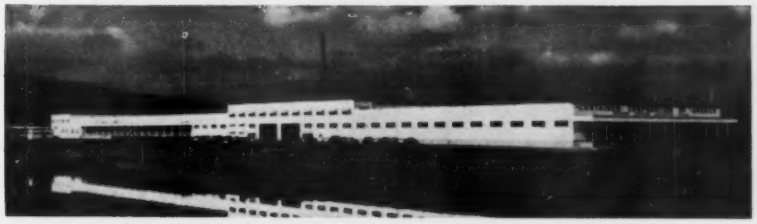
"No. 6 paper machine remaining clean and generally good results through the use of Nalco 680 applied at the rate of four pounds per ton into the fan pump suction."

NATIONAL ALUMINATE CORPORATION

W. 66th Place • Chicago 38, Illinois

Canadian inquiries should be addressed to Alchem Limited, Burlington, Ontario

THE Nalco SYSTEM...Serving the Paper Industry through Practical Applied Science



NEW PORTLAND, ORE., CONVERTING PLANT OF CONTAINER CORP. OF AMERCIA, where production was inaugurated last August. Two subsidiaries of Container Corp. jointly occupy this building—California Container Corp., making corrugated shipping containers and folding cartons, and Sefton Fibre Can Co., making fibre cans. Personnel in charge are: For California Container Corp.: Ray Van Saun, General Manager, and W. P. Peters, Plant Manager. For Sefton Fibre Can Co.: R. J. Brockman, Manager; J. D. Bare, Office Manager, and H. R. Jones, Production Manager.

GOV. ARTHUR B. LANGLIE, of Washington, presents Governor's Safety Trophy to Container Corp. of America, Tacoma, Washington, for best accident record in 1950 for paper and pulp mills in Washington. Pacific Coast Association of Pulp and Paper Mfgrs. and AFL unions sponsor contest. Trophy was won for 1949 by Longview Fibre Co. L. to r.: Oscar Kretschmar, Tacoma Mill Manager, John Stolen, Gov. Langlie, Fred Gerber, Marion Kohler, Mill Safety chairman (shaking hands with Governor), Lee Pittman, George Pyette, Nick Glasser, Vincent Larson, Laton Newell, Leland Stuller, Richard Sanderson and Leo Stone.

MORE ABOUT CENPA CO. OPERATION

The Chemipulper unit installed last winter at the Cenpa Co. mill at Begles, France, is developing interesting data which might be pertinent to some of the industry mobilization problems of U.S. mills. This possibility was revealed in an interview by PULP & PAPER with R. G. Goodwin (shown in picture) engineer for Paper & Industrial Appliances, Inc., New York, who recently made a trip on the continent and in England. He spent considerable time at the Cenpa plant, which is using waste woods for pulp.

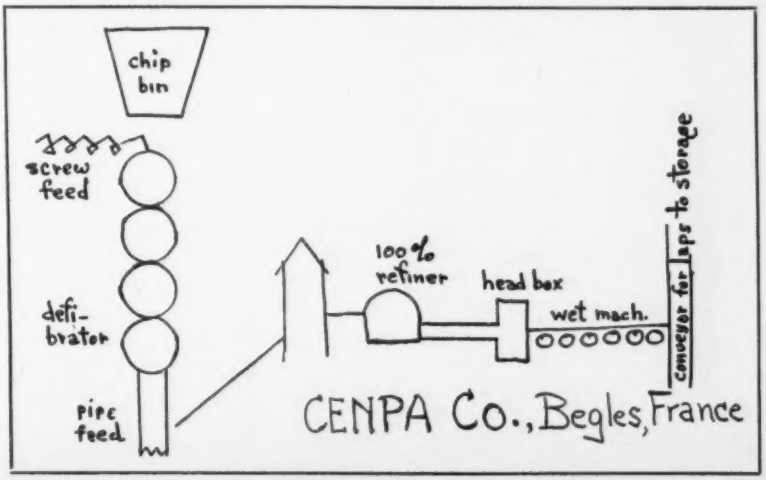
Although he would not comment specifically without further investigation, Mr. Goodwin felt that adaptations of the Cenpa installation—probably with more modern equipment than is available to the Cenpa plant—could have considerable applications to lumber or pulp mills interested in making waste use or seeking a high yield of pulp.

The waste wood at Cenpa is brought up from the French Pyrenees and chipped at the mill. It averages about 24 inches in diameter, and is cut to a special length. All hardwood, it contains about 20 per cent moisture upon arrival at the mill. The operation uses a kraft-cooking liquor, of very low sulfidity, as required by the neighboring city of Bordeaux. The current sulfidity is about 10 per cent, but it is expected to approach a more standard ratio with possible modifications of the Bordeaux regulations. The waste wood is cooked with a minimum alkali for corrugating board pulp and there is no recovery. However, it has materially increased the corrugating board output, as well as liner paper and bag paper, and has become extremely important because it adds to France's independence from outside sources.

The Cenpa layout has several unusual features, as shown by the rough diagram on this page. There is a straight flow from the chip bin to the cyclone, bottom agitation being involved, and from this point directly to a Sutherland refiner. There is a slushing phase returning back into the refiner, and the stock eventually finds its way via pipeline into a headbox preceding a Fourdrinier wet-lap machine. This latter is a jury-rig made up from the paper machine of a bombed-out mill and it drops the wet-lap pulp onto a conveyor which delivers to storage areas. This would be an unusual arrangement in this country, as Mr. Goodwin admits, but he points out that the material has gone over the Fourdrinier in good shape from the start, a good blanket and sheet are formed, partial washing is involved in the action of the suction press roll. A belt conveyor overhead transports wet-lap pulp across the street into a warehouse.

Later operations include a Hydrapulper, jordans, Sutherland refiners, making for manufacture into the company's nine-point corrugated, as well as liner board and other grades.

A brief description of the installation, with a photograph, appeared in the February PULP & PAPER, but the return of Mr. Goodwin to this country makes clear that there could be several innovations and adaptations with regard to this installation of particular interest during the current and future strong demand for fiber. The Cenpa waste consists chiefly of 1x6-inch edgings with about 10 per cent bark. Approximately 144 tons of waste daily is involved in this operation. This would be a very considerable amount of wood waste for most lumber operations, but Mr. Goodwin points out that the source need not be from merely one or two mills.



POWELL RIVER

BLEACHED SULPHITE PULP

STRENGTH
COLOR
SERVICE
DEPENDABLE SUPPLY

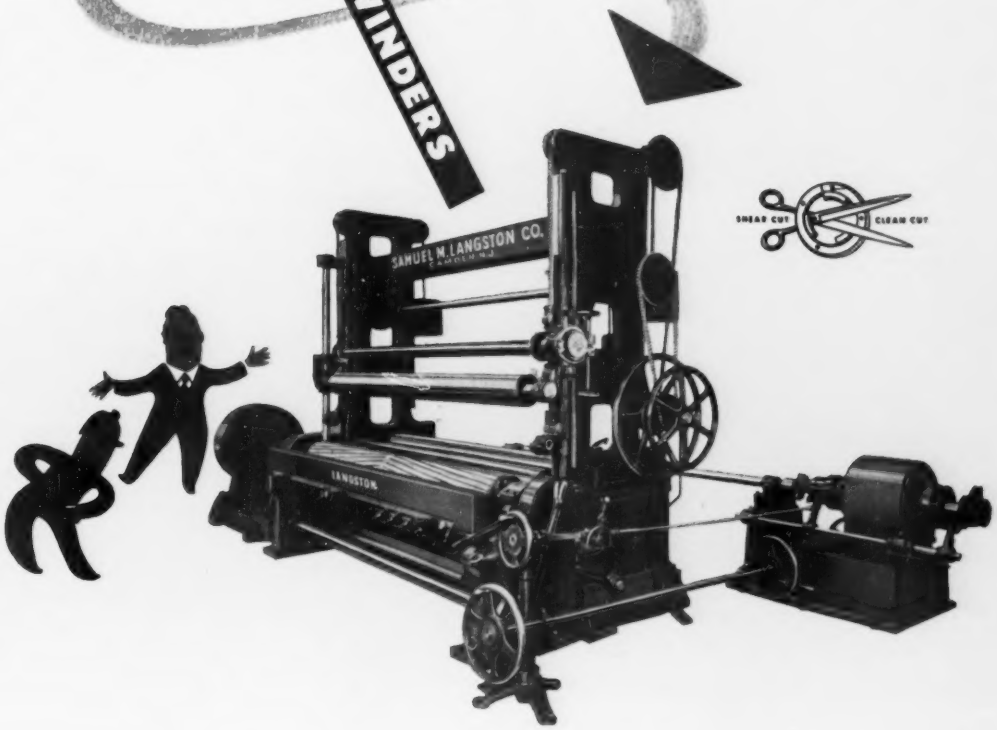
POWELL RIVER SALES COMPANY LIMITED

STANDARD BUILDING . VANCOUVER, B. C.

LANGSTON SLITTERS AND WINDERS

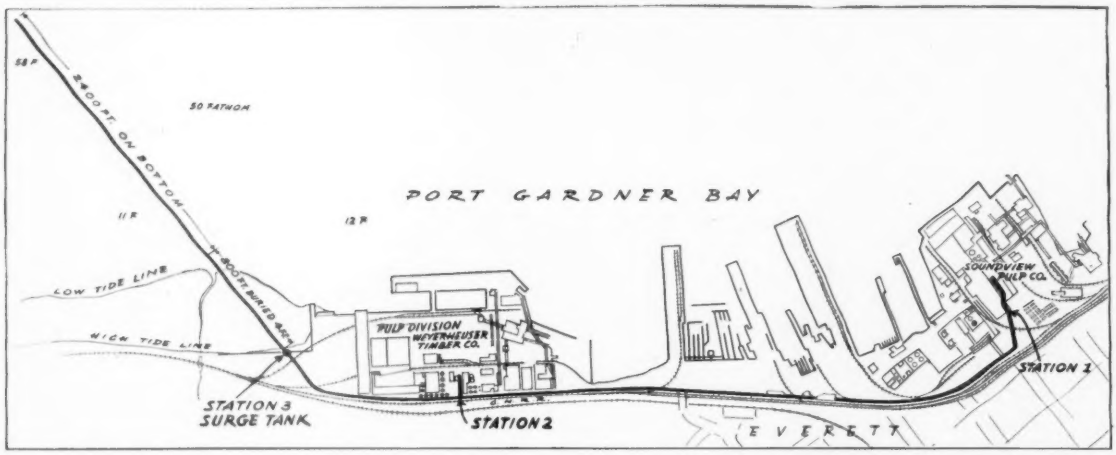
For many Winder or Rewinder jobs, from 62" to 122", the Langston "CA" is ideal. It can be built to operate at speeds up to 3000 FPM and handle rolls up to 60" in diameter or, on special order, 72". For complete details on this and other sizes, ask for Bulletin 204.

SAMUEL M. LANGSTON COMPANY, CAMDEN, N.J.



SWL PIPELINE IS OPERATING

NO LIQUOR TRACE FROM EVERETT HARBOR DEPTHS



SULFITE WASTE LIQUOR DISPERSAL PIPE which carries effluent from Soundview and Weyerhaeuser Mills in Everett, Wash., far out into the harbor, beyond point and at depth where it does not harm fishlife. Station 1 to Station 2, the two mill connections, are 4,425 ft., and this section is underground, encased in concrete. From Station 2 to Station 3, which is Surge Tank, is 1460 ft., also buried and all beyond station 2 is 30 in. diameter; before that, 24 in. Fathoms soundings marked in bay are at mean lower low water.

At a cost of approximating $625,000 and after six months of construction and plant changes, the joint sulfite waste liquor dispersal system of the Weyerhaeuser Timber Co., Pulp Division and Soundview Pulp Co., has been completed and placed into operation in Everett, Wash., harbor on Puget Sound.

Leo S. Burdon, vice president of Soundview, says it has worked well several weeks and that series of water tests in the Harbor areas, supervised by Mr. Robert Logan, engineer for the National Council for Stream Improvement, indicate there is very little trace of liquor due to the depths to which it is now discharged into the bay and the rather complete diffusion which takes place. A diving bell inspection of the submerged line revealed very strong currents in the pipe area.

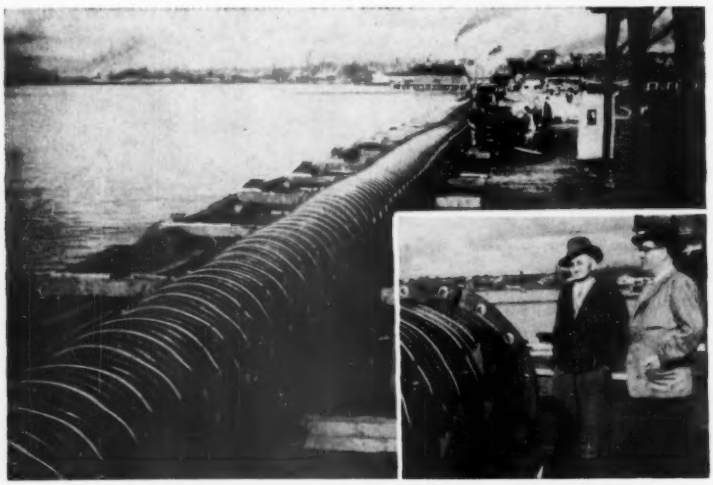
The project can be divided into three separate parts:

1. Installation at each mill of collecting and pumping facilities for the blowpit waters; the blowpit waters contain in addition to the waste sulfite liquors the water needed to wash the pulp free from them—so instead of discharging 2,250,000 gallons per day of concentrated waste sulfite liquor, this pipeline will discharge a total volume estimated at 22,000,000 gallons per day, or a dilution of one to ten. The above mentioned facilities consist of Alaskan Copper and Ekstrom stainless steel piping from the different blowpits to pump sumps, stainless steel pumps (two 5000 gpm. Bingham pumps at Soundview and one 5000 gpm. Bingham pump at Weyerhaeuser) discharging into the overland pipeline.

2. The overland pipeline starts at Soundview mill at a 24 inch wood stave pipe imbedded in six inches of reinforced concrete. This pipeline runs 4,400 feet from Soundview to Weyerhaeuser mill where it is joined with effluent pipeline from Weyerhaeuser blowpits. From this point on, for 1,600 feet to a surge tank located at high tide level just south of the Weyerhaeuser mill, the line is a 30-inch wood stave pipe, also encased in six inches of reinforced concrete. Check valves are located in the pipeline at each mill to prevent reverse flow in case of power failures. Provisions are made at each mill for venting air and gasses from effluent before it enters the pipeline. The surge tank is a 30 foot diameter, 30 foot high wood stave tank equipped with vent and float control on the discharge side to maintain a five foot level in the tank at all times, thereby preventing air from entering the submarine line. All wood pipe and surge tank were by Federal Pipe & Tank of Seattle.

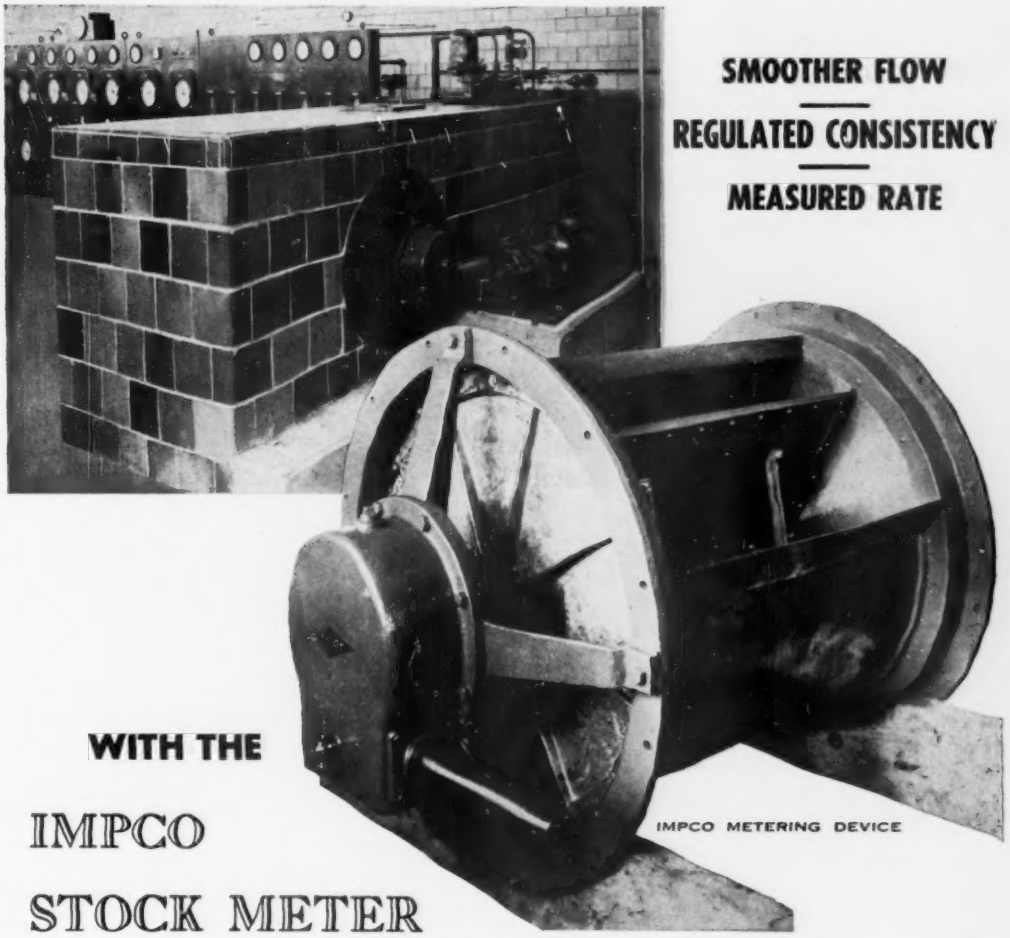
3. The submarine line, which is a 30-inch creosoted wood stave pipe with stainless steel bands, extends 3,000 feet from the tank into Port Gardner Bay.

(Concluded on page 104)



SECTION OF THE 30-INCH CREOSOTED WOOD STAVE PIPE WITH STAINLESS STEEL BANDS just before it was rolled into Everett's harbor from Weyerhaeuser dock. Wood skids were built on the side of the dock and this entire section was pulled in by single cable attached around the midsection—a tricky operation performed by Federal Pipe & Tank Co. of Seattle, supplier of all wood piping. Inset—LESTER M. JOHNSON (left), Chief Engineer, Soundview Pulp, and R. J. LEROUX (right), Mill Mgr., Weyerhaeuser, look it over.

INCREASED CAPACITY---



SMOOTHER FLOW

REGULATED CONSISTENCY

MEASURED RATE

WITH THE

IMPCO STOCK METER

IMPCO METERING DEVICE

Most pulp and paper making equipment is rated conservatively so that it has a margin of capacity to absorb peak loads either of capacity or of consistency. If a machine can be operated at a steady rate well up towards its peak, up to 30% extra capacity may be obtained without penalizing performance.

The "Impco" Stock Meter is an adjustable volumetric measuring device which enables you to realize this extra capacity from your equipment. Preceded by a consistency regulator, it gives a fixed flow of a regulated consistency and thus uniform tonnage control. Adaptable to tile, metal, concrete or wood vats.

IMPROVED PAPER MACHINERY CORPORATION

NASHUA · NEW HAMPSHIRE

Sherbrooke Machineries Limited manufacture similar equipment in Canada

Personals

MIDDLE WESTERN NOTES

FOLKE BECKER, president of Rhinelander Paper Co., was recently overseas on an extended trip to Sweden.

EARL "MICKEY" McCOURT of Consolidated Water Power & Paper, Wisconsin Rapids, Wis., managed briefly, at least, while his wife, Mugs, a leader in Girl Scout affairs in her region of Wisconsin went to Ludington, Mich., for a Girl Scout meeting.

ARTHUR B. HALL was recently named director of industrial and public relations at Ohio Boxboard Co., Rittman, O., according to *M. E. BARTHEN*, administrative vice president. Mr. Hall has been in New York in personnel and industrial engineering work.

WILLIAM J. TILDEN, himself recently become the head of Mead paper sales in the Chicago headquarters and vice president of the company, has announced *JOSEPH G. TURNER* will be working out of Chicago as sales representative in the Midwest for Wheelwright and Disco papers. Mr. Turner had been with a Washington, D.C., paper company.

MRS. JOHN H. GRAFF, widow of the former well-known microscopy teacher and authority at the Institute of Paper Chemistry, Appleton, Wis., made a three months trip to Sweden and Norway and visited former students of Appleton, Leif Joergensen and Anders Bjorkman, in Norway.

MARVIN JONES, whose appointment as Lockport Felt Co. representative in Illinois, Iowa, Kansas, Indiana, Missouri, Kansas and Oklahoma, was announced in these pages some time ago when he left a mill manager's post in the far west, has his home now back in Battle Creek, Mich., at 11 Central St. He lived in Battle Creek many years while a top official of Michigan Carton Co. Lockport's other Midwest representative, *BUD MUELLER*, covering Michigan, Minnesota and Wisconsin, lives in nearby Kalamazoo at 2014 South Westnedge.

WILLIAM J. SPRAU, plant engineer for National Gypsum, Kalamazoo, has been promoted to production engineer for four plants of the company. He was formerly with Detroit Sulphite Pulp & Paper Co.

ARTHUR L. BROWN, for 17 years with Nekoosa-Edwards Paper Co., Port Edwards, Wis., has reached retirement with that company, but plans to associate himself in executive capacity with Atwood Paper Co., 222 North Des Plaines St., Chicago.

GEORGE W. MEAD, who retired over a year ago as president of Consolidated Water Power & Paper Co., and who was succeeded by his son Stanton, expressed what amounted to a happy triumphal return to Wisconsin Rapids in mid-September after spending ten months in Florida where he made a remarkable recovery from a severe heart attack.

K-C'S LYALL STILP AT THE HELM OF HIS DREAM-BOAT

Dream ships seldom make port, but the one in the dreams of Lyall Stilp, general purchasing agent of Kimberly-Clark Corp., headquarters offices, Neenah, Wis., did.

Here he is shown in a picture at the helm of his "dreamboat" which is a familiar sight on Lake Winnebago and other Wisconsin lakes and rivers.

The *Huff 'n' Puff* is the name of Mr. Stilp's family-constructed steel-hull, double-decker houseboat-cruiser, with a 90 hp. motor and stern-wheel paddles. The five Stilp children, Lyall, Jr., 13, John, 11, Steve, 10 Mowry, 8, and Jerri, 6, did a lot of work to make it an easily-navigable houseboat, with their father in the role of consulting engineer.

Mr. Stilp, the two summers he has had the boat, has taken two top students scholastically in each of the eight grades of Lakeview school, and two others who had shown most improvement, on cruises as a reward for their scholastic work.

The boat with its canopy top, has attracted a lot of curious attention in cruises up and down the Fox and Wolf Rivers, past one of the greatest concentrations of paper mills in the world.

PACIFIC COAST NOTES

ED GARRISON, Pacific Northwest manager for American Cyanamid, had his picture in the Seattle papers with a big catch of giant king salmon while on an outing at Neah Bay, Wash.

RAY JOHNSON, sulfite superintendent at the Weyerhaeuser Pulp mill in Everett, Wash., was one of those who got "skunked" in the late summer rush to Neah Bay for the big fish and when someone said he didn't live right, Ray's quip was why change his mode of living for a poor fish.

RALPH B. KNOTT, vice president in charge of finance of Fibreboard Products, Inc., San Francisco, has been elected vice president of the San Francisco Control of the Controllers Institute.

F. N. YOUNGMAN, Crown-Zellerbach Corp. vice president showed a Portland, Ore., civic committee a sketch of an exhibit planned for the pulp and paper section of a new Forestry Museum in that city—a walk-in type of exhibit with mural and pictures depicting the industry, glass tubes showing the materials in various stages of manufacture, and examples of finished products behind glass.

JAMES RUBUSH, veteran pulp mill engineer of Wenatchee, Wash., has designed a blowdown heat recovery system for the new pre-hydraulized kraft pulp mill being built by Nippon Pulp Industries Ltd. at Nagoja, Japan.

GUS A. SPORRE, Vancouver, Wash., has been named Northwest representative of Ray Wilcox Co., Philadelphia, Pa., manufacturer of rubber pinch valves and rotary steam joints. Mr. Wilcox and his wife attended the Portland, Ore., Supts. convention.

HUGH OSBORN, of Portland, Ore., Vanderbilt's western representative, attended a company sales meeting at Norwalk, Conn.

H. E. SCHRADER was named to the executive staff of Western Gear Works, by Thomas J. Bannan, president, of the company. In his new duties, Mr. Schrader will assist B. A. Bannan, vice president, in product development and research for Western Gear Works plants in Lynwood, Belmont, and Seattle; Pacific Gear & Tool Works of San Francisco; and South Western Gear Works of Houston.

WILLIAM INGHAM, now representing National Analine to mills and other industries in the Los Angeles area, where he is living, is a former National Analine Division man in the east. He is serving under *HARRIS FENN*, of San Francisco, Pacific Coast manager.

EASTERN NOTES

BEAVEN W. MILLS has been appointed sales manager of the gravure printed carton division of Robert Gair Co., Inc., according to Wray H. Callaghan, sales manager of the folding carton operations of the company.

WILBUR McFEELY'S appointment as director of industrial relations for Riegel Paper Corp. and Riegel Textile Corp., has been announced by *JOHN L. RIEGEL*, chairman of the board for the two companies.

S. I. ARONOVSKY, chairman of the fibrous agricultural residues committee of TAPPI, has announced the majority vote of his committee to forego a fall meeting in 1951.

VERNON C. HILL, formerly with Oliver United, has joined Clark & Vicario in Bronxville, N.Y., exclusive sales representatives for The Rotareaed Corp. Mr. Hill will work principally covering the Southern territory for the company and joins forces with *JAMES R. ANDERSON* who has been covering the mid-West area for the past year.

Paper Week Dates—1952

New York "Paper Week" in 1952 will be held the week beginning Sunday, Feb. 17.

Here's the greatest little crawler tractor you've ever seen . . . the new Oliver Industrial "OC-3". It's ideally balanced for most effective loading and dozing . . . engine is mounted *back* so that front of tracks and radiator are practically in line. This better balance gives you 40% more lift with a front end loader . . . does a superior job of dozing and grading because blade is mounted close to the tracks for easier handling . . . precise control! And, operators find this balanced tractor far easier to handle . . . far less fatiguing.

The new Oliver Industrial "OC-3" gives you a full 22 drawbar horsepower . . . plenty of power for jobs in its size. It's ruggedly built for the tough jobs . . . keeps maintenance costs down. Complete accessibility makes servicing easy.

For the complete story on the new Oliver Industrial "OC-3" and how it can help your operations, see your Oliver Industrial Distributor.

THE OLIVER CORPORATION

Industrial Division: 19300 Euclid Avenue, Cleveland 17, Ohio

A complete line of industrial wheel and crawler tractors

LITTLE MILL STORY

TWO BANKRUPTCIES--THEN A SUCCESS

All of the instructive as well as exciting stories in the pulp and paper industry are not about the big companies—their $15- to $20,000,000 modern plants—their architecturally magnificent mills with amazingly efficient push-button operations.

For instance, in the little community of West DePere, Wis., just a few minutes by car out of Green Bay, there's a little mill which was bought at a sheriff's sale 16 years ago. It was a bankrupt business as a paper mill. Before that, it was a bankrupt business as a boiler factory.

First thing, the new operators decided to make about the cheapest product they could—chipboard. They decided to make it out of "country-packed" waste paper (small bundles or loose) instead of baled paper at twice the price. Then they went over the mill, foot by foot, and built up its efficiency as far as was possible with little more than current income to play with.

That is now the U. S. Paper Mills Corp., of West DePere, owned by the U. S. Paper Supply Co., of Chicago, which since that fateful day of the sheriff's sale 16 years ago has averaged over 300 days of profitable production a year. When visited recently by a PULP & PAPER editor it was making 24 to 25 tons of chipboard every day for a ready market.

Just a lot of little things went into changing this from a failure to a profitable enterprise. We took a few notes on a few of them. But the older papermakers and the machinists around the mill really summed it up when they said: "We see just a lot of changes, things that used to be done by hand are now done by machines." It has given a much better living to those employed and a feeling of accomplishment.

W. R. Cloud is Manager

As you might have expected, there's an important personality behind this achievement. He is a veteran papermaker, one of most highly respected in Wisconsin—Walter R. Cloud, Sr., the mill manager, who is 69 years old, but still gets down to the mill every day. Mr. Cloud started in the industry in Ball Bros.' strawboard plant at Noblesville, Ind., built to box their famous glass jars, and one of the most progressive companies in the board field. (It has just installed, this past year, the first Hydrapulper-Hydrafiner Shartle refining system for straw in the industry.)

Right after that sheriff's sale 14 years ago, Mr. Cloud gave up a superintendency at the U. S. Gypsum plant in Kansas City to gamble his future—despite the fact that he was 55 then—at the West DePere mill. It wasn't really only his own future, because by then his son, Walter R. Cloud, Jr., was showing a decided inclination to follow his father's footsteps. Within four years, as soon as he was out of the Univerity of Wisconsin, Walter, Jr., became his father's assistant. With Walter, Jr., as superintendent at West DePere now, the father can afford now to just sort of look in for awhile every day, just to see that things are going smoothly. And to give Walter a suggestion once in a while for an improvement. Walter, Jr., is just 30 years old, married and raising his family.

Chief engineer is Richard Wojan.

Some of the Improvements

The machine is an old 72-inch Smith & Winchester with a conglomeration of additional parts. The biggest change here was making all the drives uniform. Seven new Falk reducers with Link-Belt roller bearings and clutches were installed—one at a time. They are driven by cone pulleys with power from a 110 hp. electric motor. They replace old wooden tooth core gears and flat babbitt bearings. Each of the seven changes in drives was carried out in a 48 hour period—in that time the old drive was removed, concrete was set for the new drive and new drive was installed and started up. Now, only one set of maintenance parts is required, instead of seven.

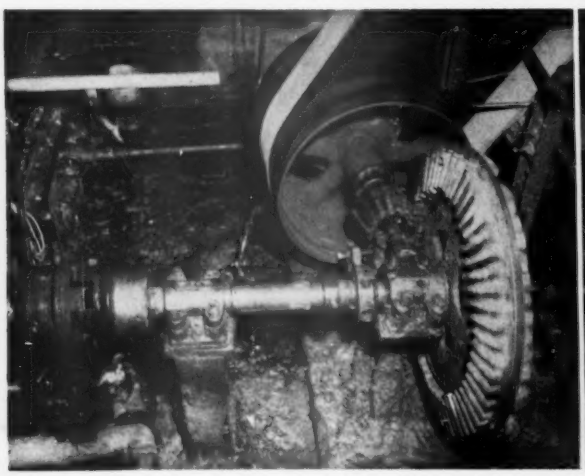
Another improvement for the machine was the installation of an L7 Nash Engineering vacuum pump for better drying efficiency and capacity.

It was possible to eliminate a lot of hand labor and reduce the labor rolls from 52 to 40 men by just adding one tractor with a front-end loader for handling the waste paper. A Towmotor truck and two dump trucks provide the mechanical equipment for materials handling.

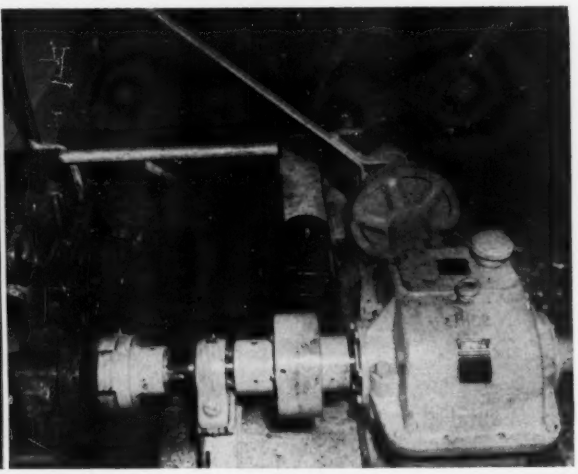
The senior Mr. Cloud designed an efficient system and storage building and layout and his staff built the building themselves for handling waste paper.

Some of these improvements have been recent, or they have been gradual. But one of the first things done some years ago was to put in two new boilers to burn pulverized coal. Now the mill uses 1,900 lbs. of pulverized coal per ton of paper produced—a good mark—and this is about

EXAMPLE OF OLD DRIVES with wooden tooth core gears and flat babbitt bearings taken out at U. S. Paper Mills Corp., West DePere, Wisconsin, in Clouds' improvement program.



EXAMPLE OF NEW DRIVES—Link-Belt roller bearings and clutches with Falk reducers installed at West DePere mill. Each of seven changes in drives was carried out in 48 hours.



carloads of CHIPS from mill waste!

SUMNER Chippers Enable Mills to Explore This Expanding Source of Pulping CHIPS

Each day scores of rail cars, trucks and barges are carrying high-quality pulping chips, produced out of wood waste by SUMNER Chippers, from sawmills to pulp mills throughout the Western timber areas.

This new source of clean and uniform chips should be of interest to you as a progressive pulp or board mill operator. You not only add to your chip supply, but also preserve your standing timber for further growth.

Your chipping requirements or those of your chip supplier can be met by one or more of the SUMNER standard wastewood chippers with 36", 53", 66" or 72" disc-diameters.

At your request, detailed information on all SUMNER equipment will be gladly furnished.

Designers and Builders of Pulp and Paper Mill, Sawmill, Boardmill and Shingle Mill Equipment

ESTABLISHED 1892

SUMNER IRON WORKS

EVERETT, WASHINGTON

FILLER STOCK PREPARATION
A SYSTEM DEVELOPED AT BALTIMORE MILL

By C. D. Coffman, General Supt.,
Chesapeake Paperboard Mfg. Co., Baltimore, Md.
(An article especially prepared for PULP & PAPER readers)

Those of us charged with the actual production of paperboard are constantly on the alert for better methods and more economical procedures. We are always acutely aware of the battle between *quality* and *speed* on the machine. Obviously, the ideal situation is to have both —and that is what we have striven for at Chesapeake Paperboard Mfg. Co. in developing a new filler stock preparatory system. The mixed paper system that we have just recently placed in operation was begun a year and a half ago and has enabled us to take a substantial step in this direction.

Familiar to all board men is the general layout of a mixed paper system, beginning with a pulping means, the removal of extra large particles of entrained junk, followed by classification as to particle size through some type of screen, and finally the removal of finely divided abrasive material and light floating rejects. The ultimate results are contingent upon the efficiency of each of the operations.

In setting up our new operation we decided upon a complete Shartle Bros. mixed paper system, involving some new, and to us, untried equipment. Briefly, the initial part of the system consists of (1) a Hydrapulper with ¼-inch perforations in the extraction plates to assure stock in uniform state of suspension, and therefore capable of succeeding uniform treatment; (2) a junk remover, especially designed for our location, to enable removal of entrained brickbats, broken bottles, and every type of heavy junk too large to go through the ¼-inch extraction holes, directly from the pulper to a Dumpster truck body *outside* the building; and (3) a ragger so that rags are entwined to the baling wires and continuously removed from this tub as a rag rope. This rope discharges through an opening in the wall to the same truck box.

With this much of the system we achieved our first result—that of uniformly dispersed paper particles, free of the major contaminations, and delivered at a constant volume. Experience has shown that *uniform results* are not forthcoming from any system,—unless that system is operated uniformly. Much trouble can arise from efforts of the crew to crowd the pulper so as to have time to "take a smoke." The correction for this can only come about through proper supervision—and a full understanding on the part of the crew as to "just why" it is necessary to feed the pulper at a uniform rate. Every operating man knows that when consistency from the pulper varies over a wide range, it is impossible to balance the rest of the system.

In our system we have a 20-ft. Hydra-

OVERALL IMPROVEMENT PROGRAM AT CHESAPEAKE PAPERBOARD

The filler stock preparatory system described in the accompanying article is one part of an overall major improvement program which began at Chesapeake Paperboard Mfg. Co. more than two years ago, and which is expected to be completed sometime within the year.

Downington Mfg. Co. equipment already installed on the two cylinder board machines includes new press sections; suction equipment; complete new drives; two cylinder molds to each machine; and new duplex cutters. Ross Engineering vapor absorption systems will be added to each machine later in the year.

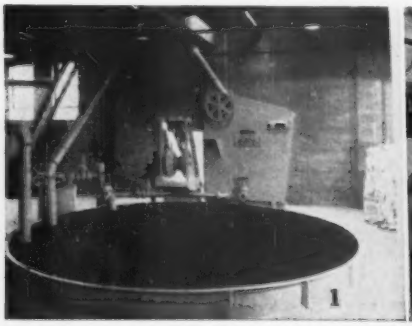
With completion of the filler stock preparatory system, installation will begin of another Shartle-Dilts Hydrapulper for an underliner and top liner system. This system will consist of cycling chests with refiners. Already installed are 4 new Miami 2-A jordans for this system, and before completion three more will be added. Along with liner and filler systems, Chesapeake has replaced old type chests with new Kalamazoo tile chests complete with Shartle agi-flo pumps.

Already installed in the program is a new Erie City high pressure boiler with fully automatic controls and ash handling equipment. New boiler capacity is rated at 150,000 lbs. of steam per hour at 450 lbs. pressure.

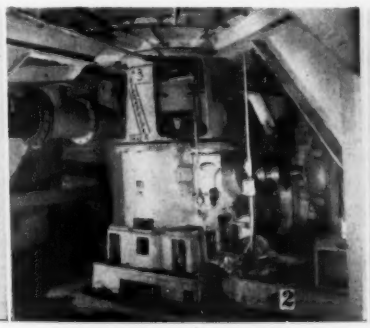
Equipment on hand waiting for installation includes an Oco water filtering system which will be installed as soon as beater room is ready for it. For handling mill refuse, Chesapeake has bought a Dempster Dumpster system which is now being used.

Chesapeake is one of the major manufacturers of folding and setup grades of board in the Baltimore, Md., area, and was founded in 1914 by J. E. Smith, Sr., who is still president and general manager of the company. Other officers include: J. E. Smith, Jr., vice-president and purchasing agent; M. E. Smith, treasurer; and C. J. Smith, secretary.

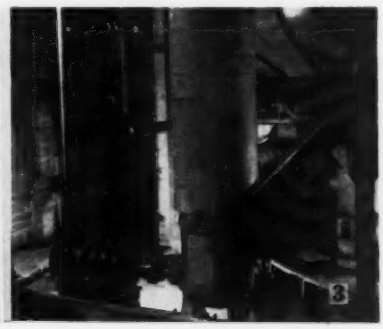
Operating men in charge of the improvement program include: C. D. Coffman, general superintendent; T. B. McConnell, maintenance superintendent; George Leurs, chief engineer; and M. Leister, master mechanic.



1.—SHARTLE BROS. EQUIPMENT is featured in new system at Chesapeake. A 20-foot Shartle-Dilts Hydrapulper is in foreground, with junk remover in back and ragger at left of junk remover. Taken before Hydrapulper was enclosed for cleanliness and safety.



2.—A BASEMENT VIEW shows the No. 3 drive for the Hydrapulper at Baltimore Mill of Chesapeake Paperboard.



3.—BOTTOM OF EXTRACTION CHAMBER from the Hydrapulper with pump which feeds stock to the system for filler stock preparation at Baltimore Mill.

IN YOUR PRODUCT DEVELOPMENT—

You Need a Good Man on the *Other End, Too!*

Product development programs are no longer "one-company" jobs. The bigger your program is, the more you have to rely on the other fellow—and the output of *his* research—to make your own succeed.

Through its continuing development work on both basic and new industrial chemicals, General Chemical can help you "man the saw" in many ways:

For example, General's research has introduced a number of important new industrial chemicals. Some have proved the basis for customers' development programs or the answer to their development problems. Among these helpful "tools" are:

BORON TRIFLUORIDE AND COMPLEXES, *versatile fluorine catalysts for organic reactions;* SULFUR HEXAFLUORIDE, *remarkable new gaseous dielectric;* GENETRONS®, *aliphatic fluorine compounds; and* SULFAN®, *stabilized sulfuric anhydride for sulfonations.*

For special process requirements, you may find General's ability to produce commercial quantities of "custom-made" chemicals equally valuable to you.

These are but some of the services our product development program offers. A personal discussion of your problems may suggest other ways it can "team up" with yours. Let's review them.

® Reg. U. S. Pat. Off.

BASIC CHEMICALS

GC

FOR AMERICAN INDUSTRY

GENERAL CHEMICAL DIVISION

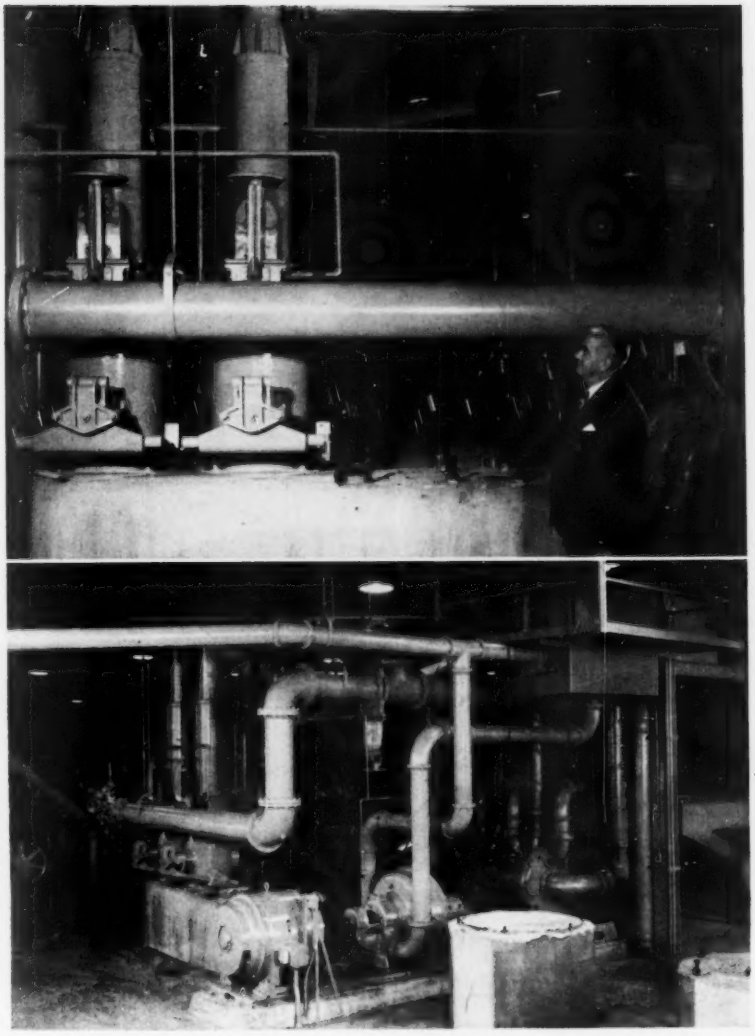
ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

OFFICES IN MAJOR INDUSTRIAL CENTERS FROM COAST TO COAST

J. E. SMITH, SR., President and Gen. Mgr., Chesapeake Paperboard Mfg. Co., is shown in top view, inspecting complete system of Hydraclones. These have moving extraction screw for removal of junk at same rate as it comes to system. Large pipe is for emergency bypass.

LOWER VIEW shows Chesapeake Paperboard's system with Hydrapulper in floor at left background; Hydraclones at left center; Classifiners and Disintegrator at center; headboxes overhead, and thickeners at right.



pulper, into which we furnish 100% mixed papers for all grades of folding and set-up boxboards. It is now furnished by two men with the aid of a fork-truck. A total of 150 tons of board is produced on two machines trimming 93" and 63" respectively. Of this amount, the Hydrapulper produces approximately 100 to 120 tons.

We are going to improve this operation by the addition of a conveyor with storage capacity of 5 to 6 bales, leaving the fork-truck free for other work. The pulper has been covered over for cleanliness and safety, and the only opening is the necessary one to receive stock from the conveyor.

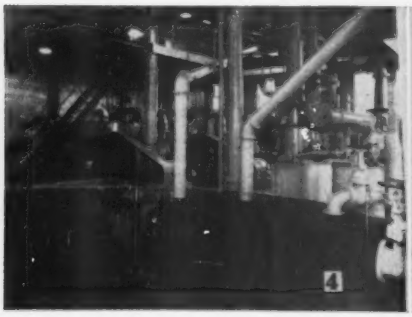
As has been mentioned, the extraction plates in the pulper have ¼-inch perforations, which we find gives us the necessary capacity for our tonnage. These perforations can be increased in size to furnish greater capacity, but the smaller they are kept, the less work the rest of the cleaning system has to do.

Most of the floating trash can be taken from the Hydrapulper, while in operation, by careful control of the white water to the junker, and by maintenance of the proper consistency in the Hydrapulper. The amount of trash taken out through the junker also has a definite bearing on the life of the rotor vanes. Considerable study on the type of material used in the vanes has determined this material should be just hard enough to withstand wear, but not so hard as to be brittle and subject to breakage.

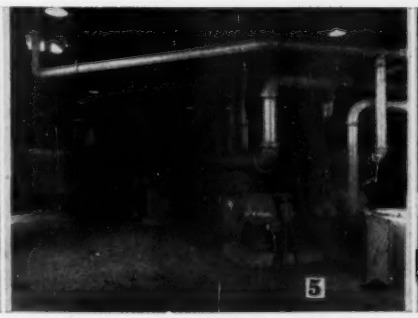
The Use of Hydraclones

It is at this point where our greatest innovation takes place going directly to two Hydraclones. These units are designed to operate in a small floor area, removing a large percentage of sand, grit and heavy waste and to eject this material 60% dry. While the Hydraclone equipment has been well tested, it was new to our experience. And we would like to report on our gratifying results with them.

The Hydraclones require very little attention, except to haul away the junk they spit out. Week-end shutdown for cleaning of settling troughs is one thing I am glad I



4.—GENERAL VIEW of whole filler stock preparatory system. Hydrapulper is in foreground with the two Hydraclones at right. The two Classifiners are in center with Shartle thickeners just back of them. Headboxes can be seen overhead.

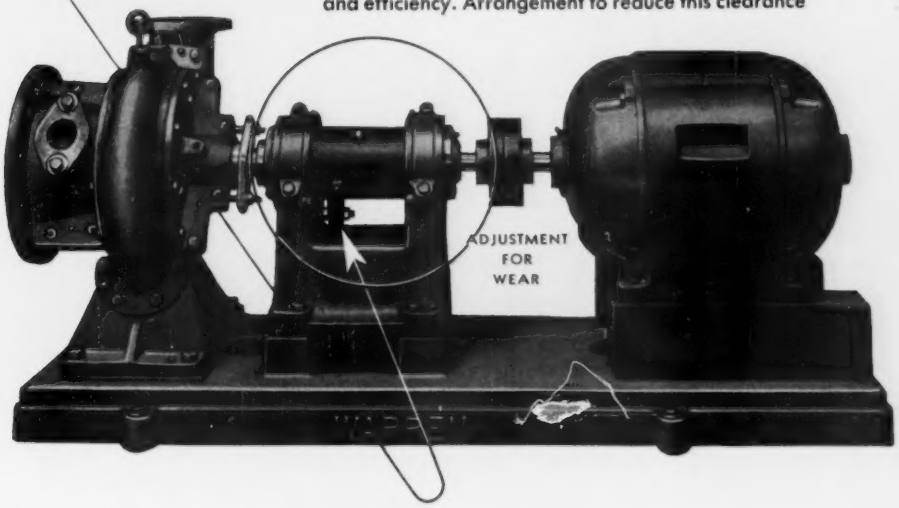


5.—DISINTEGRATOR IN RIGHT FOREGROUND takes care of rejects from Classifiners with bypass lines shown. Line overhead comes from Disintegrator to Selectrap, mounted in penthouse overhead. Selectrap rejects fall by gravity to Dempster Dumpster truck.

6.—HEAD BOX AT TOP RIGHT adjusts amount of flow to Classifiners at Chesapeake Paperboard. One on the left, the flow of rejects from Classifiners to the Disintegrator pump.

Extending the "Life Expectancy" of Warren Stock Pumps

Inevitable wear increases clearance between impeller and suction liner, reducing capacity, head, and efficiency. Arrangement to reduce this clearance



is provided by an adjustment screw, resulting in much less frequent replacement of liners.

This adjustment for wear is only one of the many features and refinements in Warren Stock Pumps, which all add up to *Longer Life, Greater Dependability, More Economical Operation and Lower Maintenance.*

For all Paper Mill services, including Pulp Stocks up to 7% density, Liquor Pumps in Sulphite, Soda and Kraft Mills, Water Pumps for Mill Supply, Showers, White Water, Wash-down, etc., also Boiler Feed and all other Power Plant requirements, specify:

WARREN
CENTRIFUGAL
RECIPROCATING

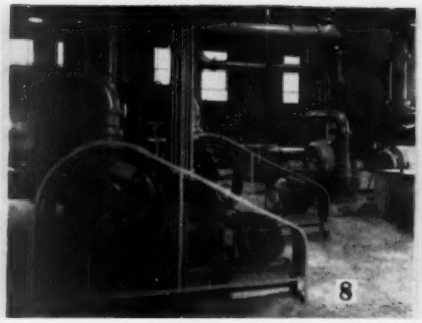
WARREN
QUIMBY PUMPS
SCREW
ROTEX

PP-21

WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC., WARREN MASSACHUSETTS

7.—**FILLER STOCK SYSTEM** is operated from a central control panel, with power being supplied through a control tower located on the roof. The system was developed by Chesapeake's engineers.



8.—**CLOSE-UP OF TWO SHARTLE CLASSIFINERS** in the system. They are driven by 25 h.p. motors through V-belts at 190 rpm. Rejects are bled through a 1¼ inch orifice for recirculation through a Disintegrator pump.

9.—**NO COUCH ROLLS ARE USED** on these thickeners at Chesapeake Paperboard Mfg. Co. The stock being ejected with air. Blowers are shown on either side of the thickeners.

don't have to contend with from here on out. Continuous operation for long periods is definitely possible with these units, and there is no necessity for shutting down on their account.

Since the Hydraclones have a continuously moving screw, they remove the junk at the *same rate* it comes to the system. I don't think anybody can look at a bale of paper and tell just how much junk it contains. Because of this variance in waste, and the fact that the screw is moving continuously, the end of the screw takes a merciless beating and may have to be replaced frequently. Efforts are being made by the manufacturer to prolong the life of these screws, and the screws now in use show every indication of lasting longer than their predecessors, due to improvements made in the discharge door design. It may be that the screw will always have to be considered an expendable item, but in view of the work it is called upon to do, and the efficiency with which it does it, the results justify the cost.

But for a slight drippage at the reject discharge point, which appears to have a beneficial effect on the rejection of the material, there is practically no water loss from the Hydraclones. The fiber loss is so low it can be ignored.

There can be a certain amount of annoyance when the unit "blows" but once the men learn how to operate the system to best advantage, a blow seldom happens. The blow occurs when for some reason the pressure on the weighted discharge door does not exceed the internal pressure of the unit. This blowing, however, is no more serious in a paper mill than the occasional shower someone gets unexpectedly almost anywhere in the wet end of the process.

With the Hydraclones we can get an immediate appraisal of the papers we are buying. If the dirt content is high, the shrinkage can be traced right back to its source. Shrinkage also can be accounted for in daily production records. There is a tool at our disposal to let us know where we stand from day to day.

As has been mentioned, these units require very little attention. There is no necessity for periodic return, nor has there been any tendency to plug. In my opinion, it is just about as foolproof as any means of removal I have ever seen.

The Hydraclones have been discussed at some length since they constitute our major departure from the known practices in mixed paper systems. The results from our experience at Chesapeake well justify our decision to include them in the program.

Stock from the Hydraclones discharges to a headbox feeding two 36 in. Classifiners. An overflow from this headbox carries back to the regulating box. This is to permit varying tonnage while at the same time keeping full gallonage going through the Hydraclones. We were told that this gallonage had a definite effect on the results, and experience has shown me first hand that this is so.

We have operated Classifiners under several different hookups, but this is the first time we have used them after Hydraclones. They are driven by 25 H.P. motors through V-belts at 190 R.P.M. The Classifiner rejects are bled constantly through an 1-¼" orifice to a second distributing box with the rejects being re-circulated through a Disintegrator pump, with a constant bleedoff to an overhead Selectrap. The accepted stock goes back to the pulper, while the floating rejects from the Selectrap drop by gravity to the same conveyor belt carrying the junk outside the building from the junk remover. In this way, the rejects are automatically combined for final disposition.

The Selectrap is cleaned with an oscillating shower, supplied by a white water pump delivering 70-lb. Pressure through ¼" nozzles every 14" across the face of the Selectrap.

The accepted stock from the Classifiners is discharged to the thickeners where it is thickened to 3-½%. Stock from the thickeners drops to a three-channel midfeather type chest, fitted with propeller agitators, from where it is pumped to the Miami 2-A jordans. The thickeners have no couch rolls, the discharge being effected by air blowers operating from the side.

The white water is returned to a white water chest from which is drawn the furnish water and dilution water for the entire system. The makeup water to this chest is the vat overflow from the paper machines. All the furnish and dilution water is heated to the desired temperature through tube-bundle heaters and controlled by means of temperature regulator valves. The makeup water going to the Hydrapulper is carried at 150-degrees Fahrenheit.

The build-up of trash in the pipe-lines and vats has been appreciably reduced through this system. This results in less frequent washups on the machine, which brings us back to the original production angle. We are obtaining *quality* in our filler, which means that the quality of our liner shows up to better advantage. With less frequent shutdowns for washup, our overall production is equivalent to *increased speed*.

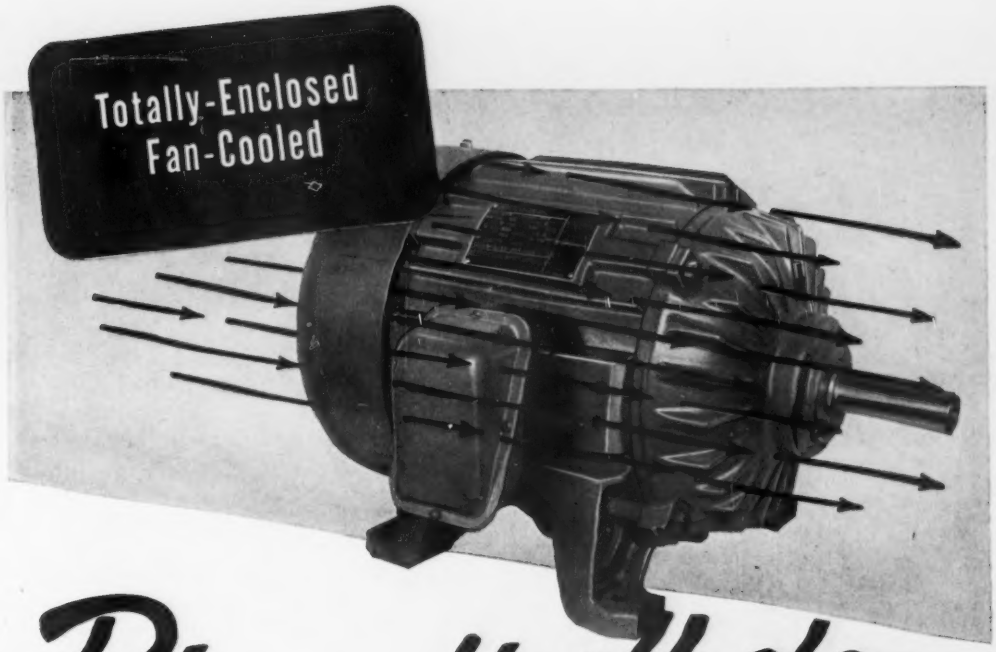
Based on the results in our mixed stock system, we are at present installing pulping means and cleaning system to be operated continuously on our back and underliner stocks.

Changes in Arkansas

Fluctuations in costs and efficiency in the harvesting of pulpwood in southeastern Arkansas are covered in a report prepared by Russ R. Reynolds for Southern Forest Experiment Station, New Orleans. Comparing 1940, 1945 and 1950, Mr. Reynolds says current mechanization is more complete and equipment costlier. Pulpwood contractors use bow saws supplemented with chain saws, but the old cross-cut saw has almost disappeared. Manpower efficiency declined from 1940 to 1945 but went back to 1940 par. Trucks are larger; hauls longer.

Gypsum Ups Sprau

WILLIAM J. SPRAU (right), Plant Engineer at National Gypsum Co.'s Kalamazoo, Mich., plant for the past four years, has been appointed Production Engineer for the four paper plants of the company, according to Fred A. Manske, Vice-President in charge of Production.



Blows itself clean as a Whistle!

DIRT IS CARRIED AWAY by cooling air blown over the ribbed cast iron frame and bearing housings of this new Allis-Chalmers tefc motor. That means less motor cleaning . . . inspection . . . overhaul!

Concealed air passages and pockets have been eliminated. Dirt can't build up to cause overheating. And as for oily dirt that sticks — just wipe or blow it off.

Studies show that on most applications, totally-enclosed fan-cooled motors more than pay back their extra cost in reduced maintenance. And this new Allis-Chalmers Type APZ tefc motor makes maintenance costs lower than ever before.

Rigid Construction

The frame is cast iron which has high resistance against corrosion and distortion. Bearings are pre-lubricated at the factory and should need no attention for years. Tapped holes with pipe plugs to permit regreasing and to provide grease relief are standard equipment.

Get All The Facts

The new Allis-Chalmers Type APZ totally-enclosed fan-cooled motor is built in all NEMA standard frame sizes from 224* to 505. Also in explosion-proof type. Your A-C Authorized Distributor or District Office has complete information. Call today, or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 51B7225.

A-3427

Sold . . .
Applied . . .
Serviced . . .

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE — Belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.

PUMPS — Integral motor and coupled types from ¾ in. to 72 in. discharge and up.

Texrope and *Vari-Pitch* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

*Similar design non-ventilated motors Type APK, also available in frames 203 to 224 inclusive.

K
ONLY NASH VACUUM PUMPS
HAVE ALL THESE FEATURES
One Moving Element. Non-pulsating Vacuum.
No Internal Parts In Wearing Contact. No Internal Lubrication. Handles Liquid With Air.
No Expert Attendance. Constant Efficiency.
Low Maintenance Cost.
Plus-
K
NASH ENGINEERING COMPANY
410 WILSON AVE., SO. NORWALK, CONN

Personals

NORTHEAST NOTES

PAUL SCHOEN has been appointed to the Washington, D.C., office of the American Paper & Pulp Association to succeed *FRED MORRELL*, who resigned. Mr. Schoen for six yeras was executive secretary of the Forest Farmers Assn. in Valdosta, Ga., and is graduate of Pennsylvania State Forest School. He was a Texas forester some years.

WARREN B. BECKLER has been appointed a vice president of the Brown Corp., in charge of manufacturing, according to *LAURENCE F. WHITTEMORE*, president of the company. Mr. Beckler has just completed 30 years' service at Brown's kraft mill at LaTuque, P.Q., where, since 1942, he has been works manager of the sulfate pulp mill. *RAY E. SMITH*, formerly in the research and development division of The American Viscose Corp., Marcus Hook, Pa., has recently become associated with the Aquex Development & Sales Corp. of Whippany, N.J.

A. P. SCHNYDER, a former Hardy engineering firm staffer in charge of construction at many mills, now has sole charge of engineering and technical developments of the Columbine Development Co., which has a Forest Service timber contract for a pulp and paper mill at Newcastle, Colorado, 130 miles west of Denver. Mr. Schnyder is paper mill engineer for Ebasco Services Inc., 2 Rector St., New York City, which has taken over engineering phases of the project after a preliminary report was made for Columbine by L. Morris Mitchell of New York.

WALTER A. KOEHLER is new sales manager of the Milwaukee Lace Paper Co., K. C. Hamilton, president of the company, announced, Mr. Koehler is a graduate of Lawrence College at Appleton, Wis.

CHARLES L. WOOD, president and general manager of the River Raisin Paper Co., Monroe, Mich., announces that *HOBART V. HODGE* was elected vice president for sales.

CLARK CARNES, in industrial relations, Kimberly-Clark Corp., Neenah, Wis., has been appointed personnel manager for the affiliate company, International Cellucotton Products, Chicago.

American Cyanamid Co. promotions include *E. D. POWERS*, vice president in charge of production, to the board of directors; *A. J. CAMPBELL*, general manager of industrial chemicals division, and *HOWARD HOUSTON*, assistant to the president, to vice presidents; *L. C. DUNCAN*, assistant to the president.

Photos courtesy Whippany Paperboard Company, Whippany, N. J.
For fast, on-machine scouring, as low as 2-3 lbs. Syntergent K to 50 gals. water may be used to make up either an acid or an alkaline wash. Felt is run at full width.

FELTS THAT LAST SAVE MONEY, INCREASE OUTPUT

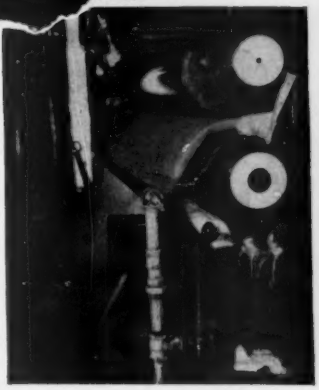
You'll find Nopco Syntergent® K felt washing compound an exceptionally effective felt preserver. We have called upon our wide experience as a leading supplier of textile chemicals, and our close association with the actual problems of producing good felts for the paper maker, to formulate a compound that does an outstanding felt cleaning job . . . that helps to reduce equipment costs and increase production. (Remember: Clean, well cared for felts can actually increase output by as much as 5 per cent.)

Syntergent K mixes readily with warm or cold water in all concentrations, to provide solutions which give copious and persistent lather and have excellent detergent and wetting characteristics. It is stable to both mild alkalis and acids, and thus can be used with either an alkaline or acid wash. It is likewise compatible with soap solutions.

You'll find Syntergent K very effective, also, for wetting out and conditioning brand new felts.

We shall be glad to supply you with formulas for *on*-machine and *off*-machine washing of press felts, wet felts and new felts. Our Technical Service Division stands ready to assist you *in your mill*, to make sure you obtain the best results as economically as possible.

Used in conjunction with soda ash, Syntergent K is ideal for cleaning vats, piping systems and screens during grade changes.



After running felt 10 - 15 minutes, fresh water showers carry away embedded soil in less than 5 minutes. The Syntergent K washes out freely and completely.

NOPCO
EVOLVED THRU RESEARCH

NOPCO CHEMICAL COMPANY
HARRISON, NEW JERSEY
Branches: Boston, Chicago, Cedartown, Ga., Richmond, Calif.

News and Notes from ■ ■ ■

EQUIPMENT AND SUPPLY COMPANIES

PAPER & INDUSTRIAL APPLIANCES, INC., New York, has licensed for some years past The Alexander Fleck Limited, Ottawa, Canada, in manufacturing and selling the Brammer Consistency Regulator. The arrangement has worked out so satisfactorily that the agreement has now been extended to include other Paper and Industrial Appliances equipment, including The Chemi-Pulper which is used for continuously producing various grades of pulp using either hardwoods or softwoods, and The Morley Continuous Pulper for continuous production of pulp from cereal straws, bagasse and other cellulosic materials.

THE SMITH & WINCHESTER MFG. Co. have developed a new type of rotary cutter for cutting preprinted webs of paper, foil, or laminated material to such close register that a pile of sheets may be cut on a paper trimmer or die press and all printed patterns will be in register with the cut. Features allow the sheets to be cut from a printed web so they will be in positive register and square, being controlled by a micrometer adjustable drive and electric eye. Heavy construction, standing on its own base produces a ridged machine which does not depend on the floor to prevent it from getting out of square.

PENNSYLVANIA SALT MANUFACTURING CO. has issued a new caustic soda bulletin prepared for all users of this important basic chemical. Divided into four sections under tabbed headings, the booklet provides handy reference for particular problems on purchasing, handling and storage, equipment design and technical data. A separate leaflet covers instructions for safe handling of caustic soda tank cars. Requests for bulletin and leaflet should be written on company letterhead and addressed to Pennsalt Chemicals, 1000 Widener Building, Philadelphia 7, Pa.

SAMUEL C. ROGERS CO.'s vice president and general manager, ARTHUR MOUL, made a recent quick trip to the Pacific Coast of U. S. and Canada, accompanied by his 16-year old daughter. The Sam Rogers firm of Buffalo, N.Y. is well known as manufacturers of specialty precision knife-grinding machinery for pulp and paper mills and other forest industries.

CAMERON MACHINE CO., 61 Poplar St., Brooklyn 2, N.Y., announces Ross Mekeel has been elected a director of the Cameron Machine Co. A statement was issued by the company's president, P. J. Lathrop. Mr. Mekeel has been purchasing agent for over 25 years. He was named secretary in 1948 and will continue in that capacity.

NATIONAL ANILINE Division of Allied Chemical & Dye Corp. announces Walter M. Ralph, director of research and development for the past 22 years, has been made assistant to the president. Mr. Ralph contributed importantly to advances in Azo color chemistry at the time when the replacement of German dye intermediates was critical to American industry. Mr. Ralph's present duties will be assumed by Dr. Wesley Minnis, who has been assistant plant manager in charge of research and development at the Buffalo, N.Y., plant.

SAMUEL M. LANGSTON CO., Camden, N.J., manufacturers of Slitters and Roll winders, corrugated container machinery, and spiral tube winding machinery, announce an important addition to their heavy duty line of type "DA" slitters and winders or rewinders, permitting operating speeds of 3,000 feet per minute and higher. The "DA" machine can now be equipped with "V' belt drives for winding drums, driven slitter shaft, and the top pressure or riding roll. All main drive gears are eliminated. The rear winding drum is equipped with a variable pitch "V" belt sheave so that the relative speeds between the two winding drums can be adjusted to suit grades of paper or board, and roll density or hardness required. One of these machines was recently installed at Hammermill Paper Co., Erie, Pa. and has proven successful. Second machine of this tye is to be installed in Hammermill's mill, and a third is on order.

IMPROVED PAPER MACHINERY CORP., Nashua, N.H., offers a new four-page bulletin, J-100. It features an unusual cut-away drawing of an ideal pulp mill building with pulp-washing, high-density storage, screening and deckering operations, together with a four-stage bleach plant all contained in one building. A flow sheet is also shown.

ALLIS-CHALMERS large end-shield bearing squirrel-cage induction motors are described in a new bulletin released by the company. Built for a wide range of applications from central station auxiliary to general industrial drives, these motors are available in ratings and speeds up to 1750 hp at 1800 rpm. Copies of "Allis-Chalmers Large Squirrel-Cage Induction Motors," Bulletin 05B7542A, are available upon request from Allis-Chalmers Mfg. Co., 995 S. 70th St., Milwaukee, Wis.

YARNALL-WARING CO., Mermaid Lane, Philadelphia 18, Pa., has issued new 24-page Yarway steam trap bulletin T-1740, and a 20-page supplement T-1750. This trap selector is particularly useful for engineers who have many applications for steam traps.

BAGLEY & SEWALL SHAFTLESS BACKSTAND represents an entirely new concept in mill roll winding. Several new features of this equipment combine to reduce the downtime on mill roll changing to a minimum. The No. 55 Backstand includes automatic tension and side register control, the latter being optional and not standard on all B & S Backstands. There is a motor for raising and lowering mill roll arms, and one for moving the arms to accommodate different width rolls. The entire working mechanism is enclosed, resulting in lower maintenance costs and greater operating safety. It may be purchased with or without B & S slitting and rewinding equipment.

WESTINGHOUSE ELECTRIC CORP. has made the first application of magnetic amplifiers to the control of a large high-speed winder drive. They will perform control functions formerly obtained by the use of rotating regulators and, in some cases, electronic equipment. The new winder will handle heavy, 234-in.-wide kraft board at operating speeds up to 5000 fpm at a Southeastern paper mill.

SPENCER CHEMICAL CO., Kansas City, Mo., will shortly begin the construction of a new anhydrous ammonia plant near Vicksburg, Miss. With an estimated cost of $14,000,000 the Vicksburg ammonia facilities will be the fifth producing unit in the Spencer operation. Present installations are located at Pittsburg, Kans., Henderson, Ky., Chicago, Ill., and Charlestown, Ind.

WARREN QUIMBY PROCESS and Medium Duty Chemical Service Pump Bulletin WQ-213 is a new two color bulletin devoted to Type "G" Pump for process and chemical plants having semi-critical requirements. Available in 1, 1¼, 1½ and 3 inch discharge sizes and heads to 240 feet, issued by Warren Steam Pump Company, Inc. Warren, Mass.

A. O. SMITH CORP. will provide seven of the eight digesters for the new International Paper Co. pulp mill at Natchez, Miss.

Info On Chemicals—
A Typical Operation

What does a typical kraft pulp mill making 150 to 170 tons daily and five-stage bleaching use in the way of basic chemicals?

Here are the data provided at one such mill, in answer to query by PULP & PAPER:

Limestone—average of 60 lbs. per ton of pulp.

Salt cake—150 to 250 lbs. per ton of pulp.

Lime—85 lbs. per ton of pulp.

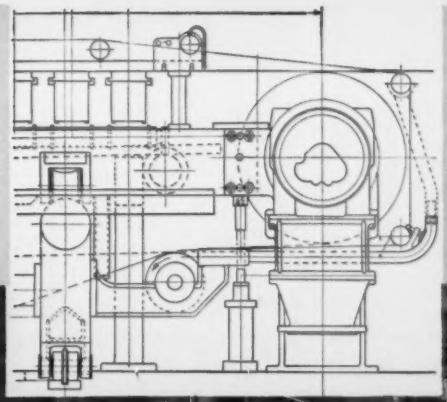
Chlorine—9 or 10 lbs. per minute—6 to 8 tons of bleached pulp per hour.

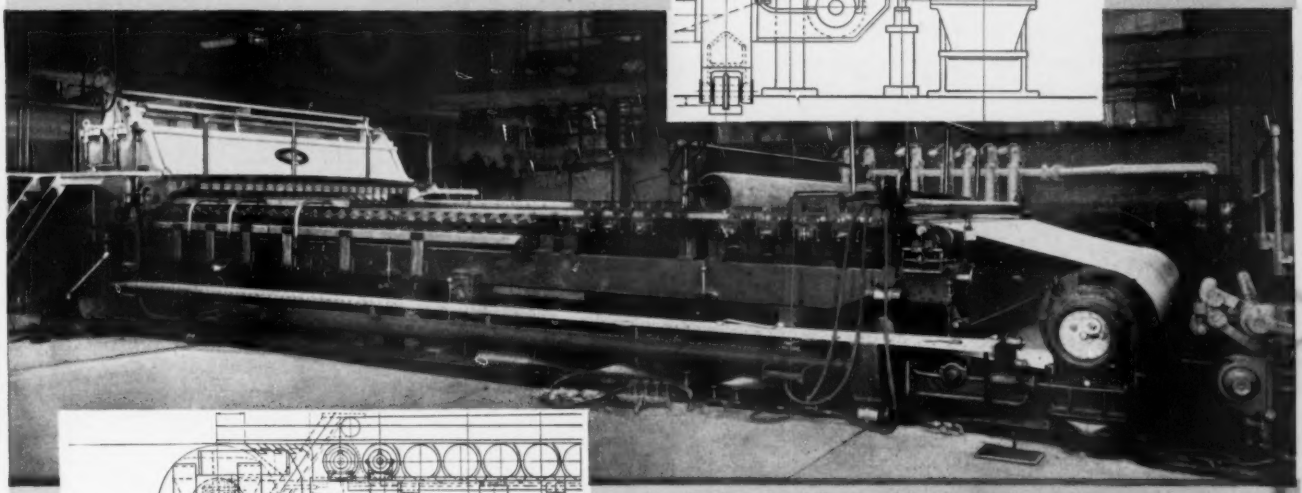
Caustic Soda—9.7 gallons per minute of 2% caustic.

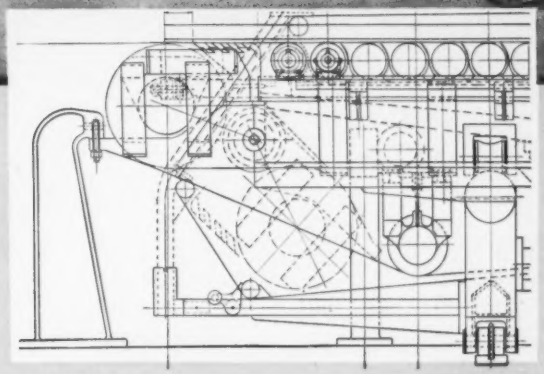
Hypochlorite—7 gallons per minute.

At Right: In the improved "Rapi-Drape" design, the Suction Couch Roll is supported from main Fourdrinier frame as shown. Eliminates need for cantilever jacking arrangement on drive end. Simplifies bearing design and permits use of similar bearings front and back. Eliminates overhung concentrated load on back bearing of suction roll.

Below: Breast Roll is supported from main Fourdrinier frame in the improved "Rapi-Drape" design as shown. Breast Roll, doctor and forming board are raised and lowered as a unit by special hydra-motor. Provides more slack and safer operation when installing new wires. Simplifies and speeds up entire operation.







Above: Fourdrinier Part of "Rapi-Drape" design not including improvements shown in line drawings. Installation at P. H. Glatfelter Co., Spring Grove, Pa.

Improvements IN "RAPI-DRAPE" WIRE HANDLING

Recent changes in the "Rapi-Drape" system have simplified and speeded up the entire wire changing operation.

Suction Couch Roll and Breast Roll are now supported from the main Fourdrinier frame, as illustrated and described above. There is less manhandling. More clearance for draping wires. Less chance of wire becoming wrinkled during installation.

With "Rapi-Drape" Wire Handling, the Fourdrinier remains in perfect alignment, adequately supported at front and back. No danger of deflection stresses and distortion as experienced with complete removal or cantilever change.

"Rapi-Drape" is one of the many design improvements in the new Puseyjones Machines. Write for full details.

"Rapi-Drape" Wire Handling is now being used successfully in these outstanding mills:

P. H. Glatfelter Co., Spring Grove, Pa.
Southland Paper Mills, Inc., Lufkin, Texas
Hollingsworth & Whitney Company, Mobile, Ala.
Southern Advance Bag & Paper Co., Hodge, La.
St. Mary's Kraft Corp., St. Mary's, Ga.
Union Bag & Paper Corp., Savannah, Ga. (2)
Hudson Pulp & Paper Co., Palatka, Florida (2)
Southern Paper Board Corp., Port Wentworth, Ga.
Fibreboard Products Inc., East Antioch, Cal.
St. Regis Paper Co., Tacoma, Wash.
Calcasieu Paper Co., Elizabeth, La.
San Rafael Paper Co., Mexico, D. F.
Papierfabrik Utzenstorf, Switzerland
National Newsprint Co., Ltd., India

On order for:

Container Corp. of America, Cali, Colombia, S. A.
Brown Paper Mill Co., Monroe, La.
Nekoosa Edwards Paper Co., Port Edwards, Wis.
Union Bag & Paper Corp., Savannah, Ga.
St. Joe Paper Co., Port St. Joe, Fla.

THE PUSEY AND JONES CORPORATION
Est. 1848. Builders of Paper-Making Machinery
Fabricators and Welders of all classes of Steel and Alloy Products
Wilmington 99, Delaware, U.S.A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

All across the North American continent, north to south and east to west, the industry is improving woodlands technics and introducing large scale conservation, reforestation and mechanization.

WOODS MANAGEMENT IN VIRGINIA

A sustained yield of pulpwood from its extensive forest land holdings in Virginia and North Carolina is practically assured as the result of a program of regeneration begun by The Chesapeake Corp. of Virginia in 1947. Ten thousand acres have already been treated under this plan, and over 100,000 more are scheduled to be included in the near future.

At West Point, Va., The Chesapeake Corp. has one of the largest sulfate pulp mills in the Southeast, manufacturing some 850,000 lbs. of sulfate pulp per day, and Fourdrinier machines for the daily production of 750,000 lbs. of kraft liner and special kraft papers. Pulpwood requirements for such a large operation early led to practical forestry management and eventually to the present program to achieve sustained yield.

J. H. Johnson, forester for Chesapeake, says that his company has had an organized forestry program since 1936, but that good practical forestry was in effect long before that. Elis Olsson, now chairman of the company, began the marking and saving of seed trees on land being logged in 1918. This is said to be the first conscious effort by any pulp mill in the South to provide for natural seeding of cut over lands.

The present method of regenerating forest land was started in April, 1947. The Chesapeake Corp., according to Mr. Johnson, is the first company to use this method on a large scale. Over 10,000 acres have already been treated, and the plan is to use the system on over a hundred thousand acres more.

THIS PICTURE OF A SIGN on a seed tree in Chesapeake Corp. woodlands tells its own story.

Under the program, merchantable hardwood and pine trees are logged out, with the pine going for pulpwood, and the hardwoods being sawn up by the portable sawmills in the area to make cross ties, low grade lunmber for pallets, flooring and hickory handles.

When logging out, only pine trees are left standing for reproduction purposes. These are carefully chosen, both for location and also for quality for seeding the cleared-off land. After logging is completed, land clearing crews come in and with giant crawler tractors and bulldozers go through the heavy brush, uprooting and removing all second-growth gum and scrub oak trees, and leaving only the pine seed trees standing in the cleared areas.

Brush and timber removed is bulldozed into gullies and low spots adjacent to the cleared land. As time passes, these spots will fill in with decomposed matter and will also be available for later seeding.

With the land, Mother Nature is ready to go to work. Sedge grass takes root to form a cover protection and the seed from the loblolly and long leaf pine seed trees begins to grow into sturdy young trees. These trees under normal conditions prevailing in the area will grow to pulpwood size in from 20 to 25 years.

A few of the areas where no seed trees were available have been planted by hand and machine, according to Mr. Johnson. In machine planting, it has been found possible to set more than 8,000 seedlings in an 8-hour day.

All the areas that have been treated where seed trees were present have come back in beautiful stands of young pine, Chesapeake officials say. As a result of their experience they feel confident the program for forest perpetuation will return adequate supply of pulpwood for

VIEWS IN CHESAPEAKE WOODLANDS. Left, cleared brush and timber are piled into low spots by tractor, where they decompose rapidly and enrich top soil. Note seed trees left standing. Middle, rapid-growing three-year old pine can be seen here, mixed with sedge grass. Right, Allis-Chalmers Crawler Tractor is clearing area.

TITAN Tops on the Job!

Photographs taken at Harbor Plywood Corporation's logging show near National, Wash.

New Series 60 ADDING FAME TO TITAN NAME

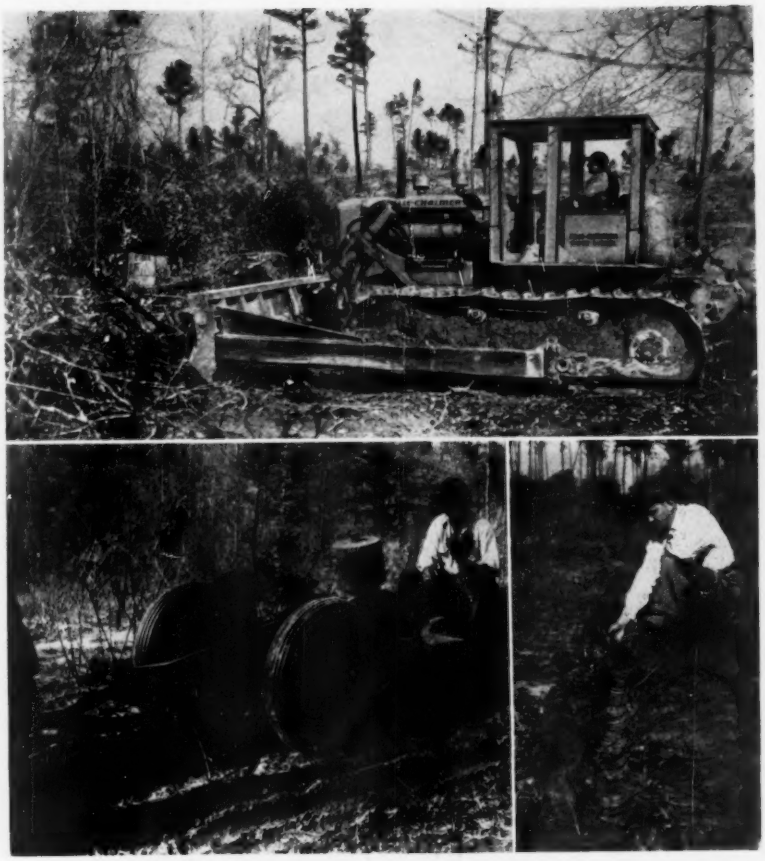
There's just one true test of a power chain saw—how does it perform on the job, under pressure, when there are tough production schedules to be met, day after day. Leading logging operators have long agreed—TITAN is tops on the job. And TITAN'S reputation for tireless performance is growing as more and more loggers use the new TITAN Series 60—the lightweight saw with the power punch. Use the TITAN Series 60 as a one-man or two-man saw. It weighs only 37 pounds complete with 26-inch bar and chain—delivers power to spare for a 5-foot bar—is available with straight blade bars from 26 to 60 inches or 19-inch capacity bow saw. It's a pleasure to see the TITAN Series 60 tackle any job in the woods—fell trees, buck, limb, cross-cut, rip, square timbers. It's a pleasure to feel how easily this saw handles, how fast and smoothly it operates. Try the new TITAN Series 60 and you'll agree—here's another TITAN that's tops on the job.

Write for new, free folder describing the complete line of TITAN Bluestreak Chain Saws.

• *Ask your dealer for a TITAN demonstration today.*

TITAN
CHAIN SAWS, Inc.
SEATTLE 4, WASHINGTON

ALLIS CHALMERS MFG. CO. tractor Division equipment, shown above, is key unit in Chesapeake Corp. of Virginia, West Point, Va., program for clearing hardwood and replacing it with faster growing pine. This Allis-Chalmers Model HD-19 Crawler Tractor is rooting out brush and unwanted timber, leaving pine seed trees—loblolly and long leaf. Below is tree planting machine used by Chesapeake Corp., planting 8,000 seedlings in 8-hr. shift. At lower right, C. R. COURTNEY, Assistant Forester, inspects seedlings planted by machine. He is assistant to J. H. Johnson, Forester for Chesapeake Corp.



their needs in the foreseeable future.

Mechanical equipment plays a large part in the Chesapeake program, not only in regular logging practice, but also in the land-clearing and seeding plan. Allis-Chalmers model HD-19 and HD-20 crawler tractors equipped with Gar Wood and Baker bulldozers are used to smash through, uproot and remove heavy brush and unwanted trees. This is equipment of the type used in heavy road building and grading work.

Equipment For New Oklahoma Mill

Production from National Gypsum Co.'s new $4,500,000 paper mill at Pryor, Okla., is scheduled for Jan. 1, 1952, according to Paul Dumas, resident manager, building was to be completed in October; and machinery installation about 60 days after.

The mill will contain 125,000 square feet of floor space. The main building is 660 feet long, and will house a 450-foot long Black-Clawson paper machine. The mill will produce 4500 tons monthly of special paper used in gypsum board. It will serve plants at Fort Dodge (Iowa) and Rotan (Texas) as well as the new multi-million dollar unit at Medicine Lodge, Kan. The company has three paper mills serving eastern plants. The mill will consume about 165 tons of waste paper daily.

Company engineers provided plans. The structure will be of one-story steel, concrete and tile. Second floor will be offices and employee accommodations. Plans include installation of a save-all to prevent fiber loss into streams.

The 450-foot paper machine comes from Black-Clawson, with mix boxes and vats from same source. The exhaust, vapor absorbing heating and ventilating systems come from J. O. Ross Engineering Corp. Shartle Bros. provides regulating box, pumps, and refining equipment.

The glazed tile chests, save-all, and chemical tanks come from Kalamazoo Tank & Silo Co.; vacuum pumps from Nash; felt conditioners are Vickery and doctors from Lodding; winder from Cameron Machine Co. and screens from Sandy Hill.

SALE OF 275,000 CORDS of pulpwood stumpage in Davy Crockett and Angelina national forests has been effected to M. D. Womack, Lufkin, Texas, for a consideration of $926,760 or an average price of $3.37 per cord.

Rayonier Spends $82,000 to Impound Liquor

Rayonier Incorporated has spent an estimated $82,000 to enlarge and recondition the Rennie Island impounding basin for its Hoquiam, Wash., sulfite mill's waste liquor. George A. Holt, assistant manager of the Rayonier pulp mill, announced. Work on this project was by the E. R Johnson Co. of Everett, Wash.

Since the Rennie Island impounding installation was started in 1941, and including the present project, it will have cost the company a total of more than $340,000, Mr. Holt said. This figure does not include many of the plant changes necessary for collection of liquor nor operating costs.

The original installation, which was built during the winter of 1941-42 and ready for operation during the summer of 1942, carried the full approval of the State Pollution Control Commission. This impounding basin covered an area of 45 acres with a capacity of 100,000,000 gallons.

In order to get the sulfite liquor to Rennie Island a pipeline was built under the Chehalis River. The 10" wood stave pipe was built on the north side and then pulled across the river in a ditch dredged out of the river bottom.

Two years later the pipeline had to be completely replaced at a cost of $41,000.00. This newer line has stainless steel bands and concrete anchors every five feet to keep the line submerged in the trench in the river bottom. It was also necessary to build up and recondition the dikes in 1943. The necessity for reconditioning the dikes is due to the wave action of the impounded sulfite liquor, L. R. Wood, Rayonier plant engineer, explained. It was again necessary to recondition the dikes in 1949 at a cost of $11,000. In 1950 it was decided to enlarge the diked area by another 45 acres, and this increased the capacity of the Rennie Island ponds to 150,000,000 gallons. The new diked area increased the impounding capacity by 50,000,000 gallons. The new project consists of two rows of 840-24 ft. cedar pilings along the top of the dikes which will carry vertical plank walls. The top of the dike between these two plank walls will then be filled with the sandy material on the island. Over 250,000 bd. ft. of cedar planks were required. It is the opinion of Rayonier engineers that the piling and planks will reduce the amount of damage from wave action.

Provision has also been made in the present project to raise the level of the dike another two feet, Holt said, and it may be necessary at some future time to raise the original dikes by this amount. If this is done, basin capacity would be increased by another 34,000,000 gallons.

LORAIN
SELF-PROPELLED
CRANES
Will Answer Your Pulpwood Needs Today

with these Features

- One-man operation of turntable and propelling controls
- All controls for everything at operator's finger tips
- 4 speeds in both directions . . . 1 to 7 miles per hour
- Finger tip air power steering
- 4 and 6 wheel carriers available, in 2 and 4 wheel drives
- Special-built, exclusive carrier design

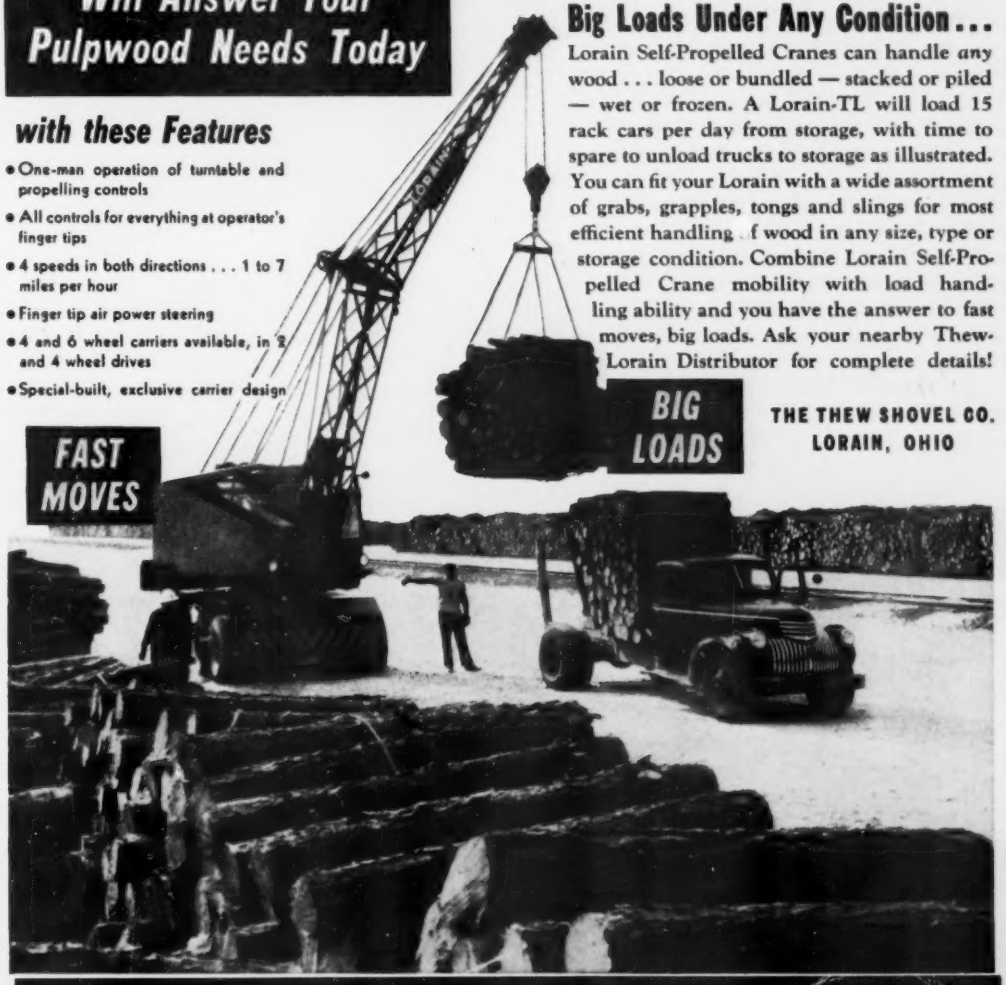
Fast Moves on Rubber...

Wherever there's pulpwood to be handled, you can get there on rubber-tire Lorains in a hurry. Around the yard or dock you'll gain minutes every trip — and extra loads every day — when you roll on rubber to the spot. Lorain Self-Propelled Cranes are one-man operated, travel speeds up to 7 m.p.h., capacities from 10-tons up. (30 m.p.h. 2-engine Lorain Moto-Cranes also available for unlimited high-speed mobility.)

Big Loads Under Any Condition...

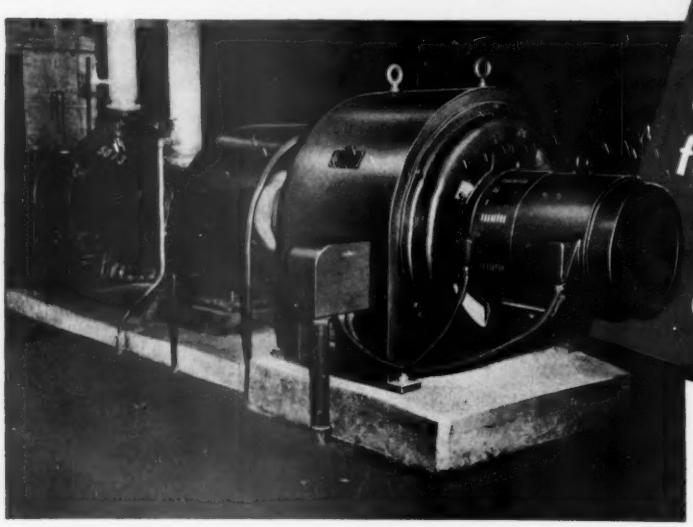
Lorain Self-Propelled Cranes can handle *any* wood . . . loose or bundled — stacked or piled — wet or frozen. A Lorain-TL will load 15 rack cars per day from storage, with time to spare to unload trucks to storage as illustrated. You can fit your Lorain with a wide assortment of grabs, grapples, tongs and slings for most efficient handling of wood in any size, type or storage condition. Combine Lorain Self-Propelled Crane mobility with load handling ability and you have the answer to fast moves, big loads. Ask your nearby Thew-Lorain Distributor for complete details!

THE THEW SHOVEL CO.
LORAIN, OHIO



THEW LORAIN® — CRANES *for* PULPWOOD HANDLING

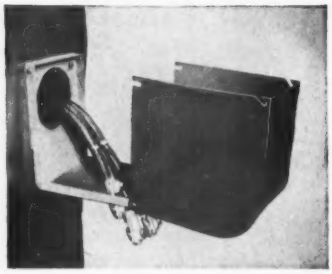
ELLIOTT SYNCHRONOUS MOTORS



a new high in dependability for pulp and paper mill drives—

Bracket type Elliott Fabri-Steel synchronous motor driving Jordan.

Whether you need synchronous, squirrel-cage, wound rotor, or direct current motor drive,



Large, easily accessible conduit boxes are standard on all Elliott motors. Drip-proof box above plus long leads and clamp-on type connectors make connections a simple task, and provide adequate protection. Splashproof type conduit boxes also available, providing same ample size and ease of accessibility.

Select ELLIOTT—because

- **Long established reputation**—manufacturers of dependable motors and generators for over half a century.
- **Pioneering achievement**—many outstanding features in motors today originated in Elliott Engineering Department.
- **Advanced engineering** — completely re-designed line of motors and generators since World War II. The new FABRI-STEEL design provides:

New bumpproof strength . . . Rigid, light bearing brackets . . . Ease of accessibility . . . Improved ventilation . . . Reduced maintenance cost. Write for descriptive bulletins.

L-816

Elliott FABRI-STEEL MOTORS AND GENERATORS

ELLIOTT COMPANY

RIDGWAY DIVISION • RIDGWAY, PA.

Plants at: Jeannette, Pa. • Ridgway, Pa. • Ampere, N.J. • Springfield, O. • Newark, N.J.

DISTRICT OFFICES IN PRINCIPAL CITIES

INTEGRATION IN SOUTH

LONG RANGE PROGRAM IN VIRGINIA

The long-range program of forest management developed by Camp Mfg. Co., Inc., Franklin, Va., has not only been aimed at achieving a sustained supply of wood from its timber holdings for the manufacture of lumber and of pulp and paper, but also of accomplishing such integration between these two divisions as to make complete utilization of this wood supply, with practically no waste resulting either in the woods or at the manufacturing plants.

Officials at Camp feel they have come close to reaching their goal in utilization through some refinements to their program, begun several years ago, which have been completed this year. The result is the use of the entire tree from the logging op-

1.—CAMP MFG. CO. program for wood utilization calls for shipment of the whole tree in logging, either for use as sawlogs for the lumber division, or for pulpwood if unfit for saw timber. Here a whole trainload of logs in full length arrives at Franklin, Va., for use as pulpwood.

2.—RANDOM LENGTH LOGS—from 8 to 16 feet—which were unfit for saw timber are cut to 5-foot lengths on the gang saw platform and are then conveyed to the barking drums.

3.—LOGS TUMBLE DOWN the chute from the two huge Camp barkers. Chip storage bins can be seen in the rear.

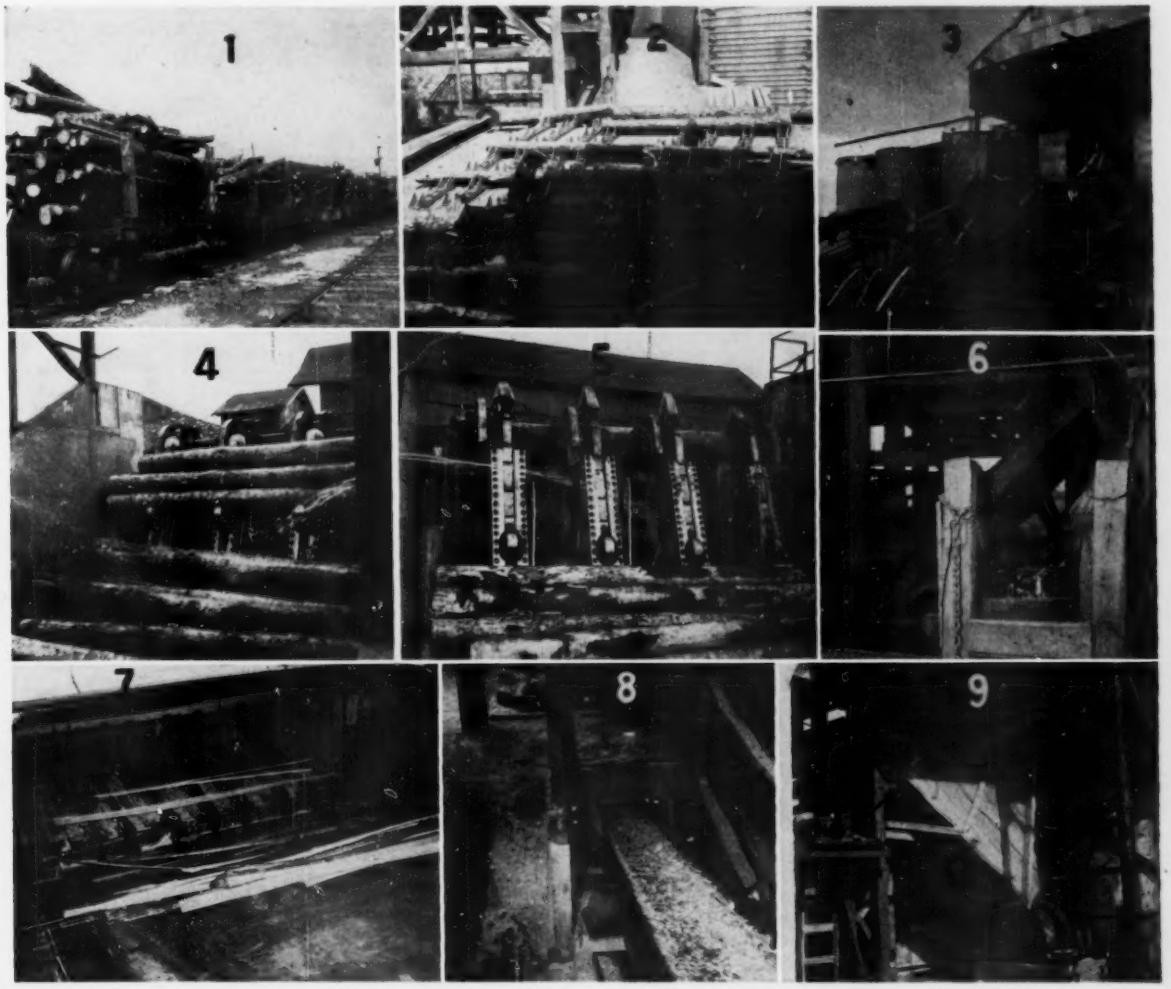
4 & 5.—TWO VIEWS OF CAMP whole-log barker—the only one of its kind in the country. The barker was built by Newport News Shipbuilding Co., and is powered by a 125 h.p. General Electric motor. Its use to bark saw logs makes it possible to convert the equivalent of 9,000 cords of wood each year to pulp chips which would otherwise be lost.

6.—UNDERSIDE OF NEWPORT NEWS whole-log barker shows pickup conveyor for taking bark to the power plant furnaces.

7.—AN OLD PAPER MACHINE felt is used to convey slabwood and trimmings from the sawmill log carriage to the chipper.

8.—SLABWOOD FROM SAWMILL has been converted to chips on the Murray chipper and is taken to the pulp mill chip storage bins.

9.—THIS CARTHAGE 48-INCH CHIPPER handles rip mill trimmings and the chips are blown to the pulp mill some 300 feet away.



ration, either as a saw log or as pulpwood, and the utilization of every scrap from the lumber manufacturing operation for conversion as chips for the making of pulp.

Camp Mfg. Co. was founded in 1887 by Paul D. Camp, James L. Camp, and Robert J. Camp. Operations were set up in the center of the loblolly pine timber area adjoining the historic Great Dismal Swamp of Virginia. The company has since acquired extensive holdings of timber lands along the coastal regions of Virginia and North Carolina, and is said now to have several hundred thousand acres of forest land under its management.

Present officers of the company are J. L. Camp, Jr., president; Hugh D. Camp, and Wm. Camp, vice-presidents. All are descendants of the original founders. And all have held firm to the policy of scientific forest management and progressive utilization of wood resources. This has resulted in increased yield of timber from the land, and in increased yields in pulp and in lumber from the trees taken out.

J. B. Johnson, general manager of the woodlands operations for Camp, says that as a result of the continued policy of conservation maintained by the company

J. B. JOHNSON, General Manager of Woodlands Division, Camp Mfg. Co., Franklin, Va.

they are now growing more sawmill timber on their holdings in Virginia and North Carolina than is being taken out, and they have increased the production of their pulp and paper division without seriously affecting the supply of pulpwood from the area.

Steps for conservation and utilization as outlined by Mr. Johnson are as follows: (1) Top logs from saw timber which normally is left in the woods is now being brought into Franklin for use as pulpwood. This makes for whole tree utilization. (2) Barking of whole logs destined for the sawmill in the lumber division makes it possible to use slabwood for pulp chips. (3) Installation of a chipper and conveying equipment in the rip mill completes the utilization of scrap from the lumber operation for the manufacture of pulp.

Top logs which are unfit for lumber, because of size or shape or quality, are brought into Franklin in random lengths from 8 to 15 feet by rail car, truck or barge. They are unloaded by Browning steam crane onto a platform from which they are moved to a lugged chain conveyor which pulls the logs through circular gang saws and cuts them into 5-foot pulp log lengths. They are then carried on through the two huge rotary drum barkers and on to the chippers.

Saw logs arriving by truck or rail car from the logging operations are placed on the deck of the log barker. They are conveyed sideways, then pulled off one at a time into a single strand conveyor which takes them to the top of the barker. At this point they are kicked by a steam kicker into the barking drum.

This whole log barker, the only one of

(Concluded on Page 102)

Controlled Digester Blow Heat Recovery Provides at Constant Temperature

A SPECIALLY engineered Swenson Surface Condenser extracts the heat from steam released during the digester blow, thus providing an abundance of uncontaminated hot water for pulp washing and other mill uses . . . a constant flow at uniform temperature.

Operation is automatic, synchronized with the blowing cycles. Pulp entrained with blow steam is removed by an integral centrifugal separator, keeping tubes free of fibres and eliminating the need for frequent cleaning.

Send for Bulletin E-108, describing this and other Swenson Equipment for Pulp Mills.

- Evaporators
- Pulp Washers • Deckers • Filters
- Digester Blow Condensers
- Surface Condensers
- Turpentine Condensers • Causticizers

SWENSON

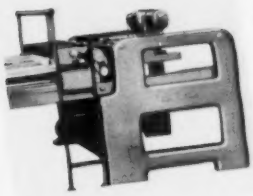
REG. U. S. PAT. OFF.

SWENSON EVAPORATOR COMPANY

DIVISION OF WHITING CORPORATION

15632 Lathrop Ave. Harvey, Illinois

ARDMORE (Phila.): 9 Rittenhouse Pl. HOUSTON 2: 825 M & M Bldg.
BIRMINGHAM 3: American Life Bldg. PITTSBURGH 22: 214 Empire Bldg.
BUFFALO 2: 610 Jackson Bldg. NEW YORK 7: 30 Church St.
CINCINNATI 2: 729 Fed. Res. Bank Bldg. SEATTLE 1: 1326 Fifth Ave.
TORONTO 2: 47-49 LaPlante Ave.



CLARK-AIKEN

Conventional

TYPE LAYBOY

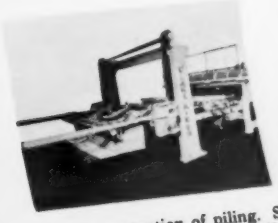
Heavy cast end frames, large-section rolled steel shapes, anti-friction bearings throughout for smooth, vibrationless operation, less broke, at higher speeds. Efficient roller-chain and sprocket lowering . . . trouble-free . . . fast return. Upper and lower limit switches. Independent-motor-driven, cam-operated joggers. Scale setting of joggers and slitters for accurate alignment without use of tape measure. Automatic lowering. Lowering speed adjustable to pile height growth.

CLARK-AIKEN

Overhanging

TYPE LAYBOY

Skids rest on heavy-wall tubes which ride in stirrups supported by steel cables. At maximum pile height, skids rest on floor and tubes are easily withdrawn. Design permits greater pile height and side pile removal . . . ideal for applications where end pile removal is not desirable. Heavy cast inverted-L end frames, large section rolled steel shapes, anti-friction bearings for smooth, vibrationless operation. Independent-motor-driven cam-operated joggers. Scale setting of joggers for accurate alignment without tape measure. Automatic lowering, lowering speed adjustable to pile height growth.



CLARK-AIKEN

Vickery

TYPE LAYBOY

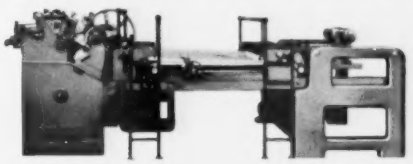
A new conception of piling. Skids rest on floor and remain stationary. Delivery, actuated by hydraulic cylinders, rises as pile height increases. Skids may be removed from sides or end or removal and replacement may be speeded by track system. Delivery quickly drops to starting position after pile removal. Heavy cast end frames . . . large-section rolled steel shapes . . . anti-friction bearings throughout . . . simple, trouble-free hydraulic system. Lifetime tapes in delivery. Independent-motor-driven cam-operated joggers. Scale-setting of joggers. Automatic lowering; speed adjustable to pile-height growth.

you can have a layboy exactly suited to your needs with any Clark-Aiken

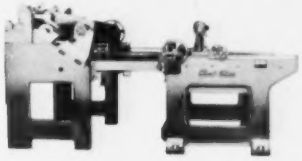
HIGH-SPEED PRECISION CUTTER-LAYBOY UNIT

- - - First to coordinate cutter and layboy design.
- - - First to offer a complete cutter-layboy and overlapping delivery unit line.
- - - Clark-Aiken is the first and only manufacturer offering a choice of three types of layboys—one exactly suited to your needs.
- - - Clark-Aiken engineers will gladly assist you in selecting the cutter and layboy which will do the best job for you. Write, wire or phone The Clark-Aiken Company, Lee, Massachusetts.

TYPE H CLARK-AIKEN HEAVY DUTY CUTTER-LAYBOY UNIT for high-speed cutting of board or pulp, multiple sheeting. Simplex or duplex, 76" to 220", inclusive, with or without overlapping delivery.



TYPE C CLARK-AIKEN SUPER-SPEED PRECISION CUTTER-LAYBOY UNIT for extreme accuracy in finishing room service. Simplex only, 76" to 112", inclusive, with or without overlapping delivery.



TYPE D CLARK-AIKEN HIGH SPEED ECONOMY CUTTER-LAYBOY UNIT for finishing room service and use of convertors and printers. Simplex only, 36" to 100", inclusive, with or without overlapping delivery.

20% OF STAFF GET GLASSES

Plant Superintendent James D. Fraser of Coos Bay Pulp Corp. (Scott subsidiary) mill at Empire, Ore., is shown (in picture above), making a test of his eyesight on a special sight screener machine leased by American Optical Co. This pulp mill's corrective-protective eye program started about two years ago has resulted in 20 per cent of employes obtaining nonbreakable corrective glasses.

It is a voluntary general safety program activity, according to Henry S. Godshall, Jr., plant manager. The plan is to re-check eyes every 18 months. The test is given by the Coos Bay mill personnel manager. An examination card (shown below) is supplied by American Optical for each test.

Upon completion of examination, this card is sent to a local optometrist who analyzes the results and prescribes either further examination or advises that the man's sight is being properly looked after. If further examination is required it is recommended that a man get such attention. If he goes ahead with this, all the costs of examination and furnishing of safety glasses is covered in one form or another through the company. The only charge a man might incur is a nominal fitting charge.

"Although still somewhat new around here," said Mr. Godshall, "the program seems to be well accepted and is another positive plug in a strong safety program."

AO SIGHT-SCREENER RECORD

Name _____ Dept. _____ Clock No. _____ Date _____

Job Title _____ Eye Protection Used ☐ Male ☐ Female ☐ Age _____

Wears Glasses: Yes ☐ No ☐ At All Times ☐ Sometimes ☐ Work Only ☐ Reading Only ☐ Bifocals ☐

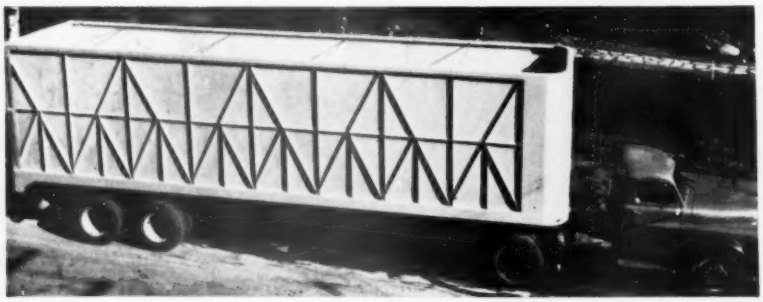
Dial No.	RED SERIES — If the employee wears glasses at all times, he should be instructed to *keep them on* for this series.	Prof. Interpretation	Dial No.	BLACK SERIES — If the employee wears glasses at any time, he should *keep them on* for this series.	Prof. Interpretation
1	Check letters reported — KR / KR XB / XB / Alternation		1	Check letters reported — KR / KR XB / XB / Alternation	
	FOR BOTH RED AND BLACK SERIES, IN 2, 3 AND 4 DRAW A LINE THROUGH EACH ERROR IN THE LAST GROUP READ				
2	E F TC DZEN BNEC EHZN FZEC TFEO ZNHT		2	E F TC DZEN BNEC EHZN FZEC TFEO ZNHT	
3	N F ET CDZE ZBNE NEHZ ECNF ETOF NTZH		3	N F ET CDZE ZBNE NEHZ ECNF ETOF NTZH	
4	Z E CE CNDZ EBNC ZHEC NEDF OEFT THNZ		4	Z E CE CNDZ EBNC ZHEC NEDF OEFT THNZ	
5	Draw line through letter under incorrect groups. 1 2 3 4 5 A · 1 2 3 4 5 B · 1 2 3 4 5 C · 1 2 3 4 5 D · 1 2 3 4 5 E		5	Draw line through letter under incorrect groups. 1 2 3 4 5 A · 1 2 3 4 5 B · 1 2 3 4 5 C · 1 2 3 4 5 D · 1 2 3 4 5 E	
6	Draw line through position reported for horizontal line. (Top of scale) . . . . . (Bottom of scale)		6	Draw line through position reported for horizontal line. (Top of scale) . . . . . (Bottom of scale)	
7	Draw line through position reported for vertical line. 2 4 6 8 10 12 14 16 18 20 22 24 26 28		7	Draw line through position reported for vertical line. 2 4 6 8 10 12 14 16 18 20 22 24 26 28	
	COLOR PLATES (DRAW LINE THROUGH ERRORS) 1 2 3 4 5 6 7 8 9 10				

NOTE. Interpretation is to be made by refractionist only.
Technicians are *not* to give any information about results. They are *not* to make comments or recommendations.

Referred for Eye Examination Yes ☐ No ☐ Employee Notified _____ Examined _____ Filed _____

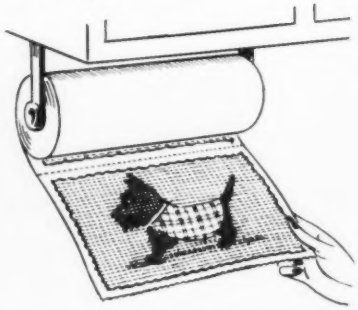
970 Copyright, U.S.A., 1965, American Optical Company Chart No. 1235V

B. C. CHIP TRAILER



HERE IS A SPECIALLY-CONSTRUCTED TRAILER used in hauling chips from B.C. Forest Products Ltd., at Youbou, Cowichan Lake, to the H. R. MacMillan Export Co. bleached kraft mill at Harmac, near Nanaimo, Vancouver Island, a 60-mile run. The trailer, operated with 5-ton Dodge trucks, is 35 ft. long, 8 ft. wide and 8 ft. 2 in. deep, mounted on light-duty trucks. Sides of "tank" are welded throughout. Tank has capacity of 10 units, about 18 tons. When tanks are dumped, trucks are driven under gantry crane and uncoupled from each other. Crane lowers a hook, fastened to an eye at bottom of front end of trailer. As crane lifts front of tank, back end is lowered onto grooved base which holds it in place. The whole back end of tank swings out on hinges, and chips are spilled onto chute, which carries them to the mill. Trailer built by Columbia Trailer Co.

The Roll-O-Mat, New Paper Use Idea



In a recent Review Number, PULP & PAPER observed that new and unusual uses for paper had a way of coming to inventive minds during periods of tight supply of pulp and paper, when the opportunity wasn't of practical value. But Eugene W. Moore, industrial advertising executive with a prominent engineering and manufacturing organization, has come up with one whose base could be products already manufactured in quantity by many mills. Mr. Moore's interest in the industry came naturally through his company's equipment in the field. Recently a household crisis involving the age-old problem of small children at table got Mr. Moore to thinking. Result: the Roll-a-Mat, a registered name, and a new idea Mr. Moore believes, for paper men (shown above).

Roll-a-Mat is not now manufactured, but in his opinion would appear as an economic and disposable roll of table place-mats with perforations to allow tearing off individual mats. They could be plain, could be kraft or bleached, and carry designs and advertising—the latter if used by chain restaurants or large resorts. Designs might carry a child motif or be initialed for home use.

Mr. Moore suspects that the sale might be a high percentage of paper towel demand and could be made on the same equipment. He points out that they can be sold cheaper than packaged sets. It is *Mrs.* Moore who really found them acceptable. Like other roll papers in the home, she says, they would be easily stored, easily accessible, absorbent enough for child use, and disposable.

Columbus Cellulose Men

AMONG KEY MEMBERS of the operating staff of Columbia Cellulose Co. at Watson Island, B.C., are D. D. CARR-HARRIS, Plant Engineer (left); L. O. LOUCKS, Chief Electrical Engineer (center) and G. R. MORRISON, Chief Power Plant Engineer.

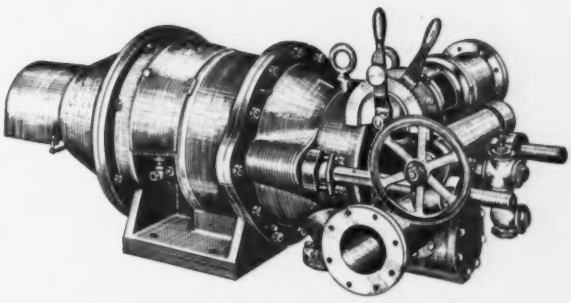
"we're ordering *More* MORDENS"

50% or better of the Morden "Stock-Makers" ordered during the last four years have been on repeat orders from old customers. Customers who have proved "Stock-Makers" superior performance in comparison with other equipment.

Nearly 500 "Stock-Makers" have been installed throughout the world during the last 15 years. Over 400 of these "Stock-Makers" have been installed during the last 4 years.

Such universal acceptance of "Stock-Maker" argues well for your investigation of the benefits to be gained from "Stock-Maker's" beating and refining.

MORDEN STOCK MAKER
TRADE MARK

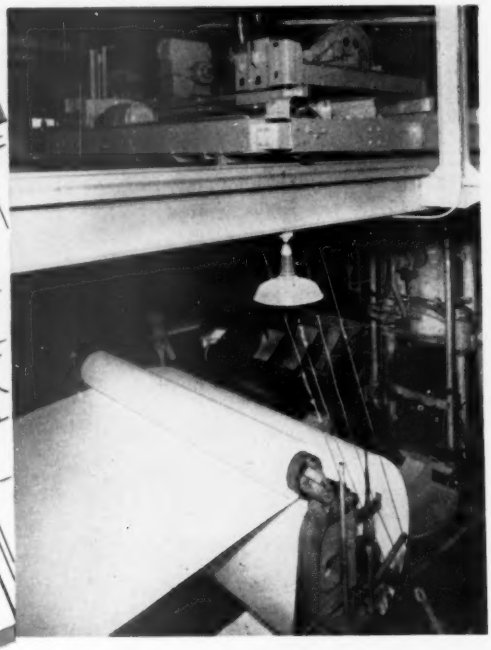


MORDEN MACHINES COMPANY

PACIFIC BUILDING, PORTLAND 4, OREGON

In Europe: Millspaugh, Limited . . . . . Sheffield, England
In South America: Parsons & Whittemore, Inc. . . New York City
In Canada: The William Kennedy & Sons, Ltd., Owen Sound, Ontario

Your job requirements are the blueprints for your Ederer Crane . . .



For the special materials handling jobs in pulp and paper mills, EDERER engineers and builds cranes to exact job requirements. EDERER cranes are now at work throughout the industry . . . roll handling and storage cranes—canting cranes—stand-by cranes—cranes with extra low head room and extra high lift . . . affording speed and economy all down the line. Why not discuss your job requirements with an EDERER engineer?

50th ANNIVERSARY YEAR

EDERER

ENGINEERING COMPANY

2931 FIRST AVE. SO. SEATTLE 4, WASH.

EXPORT DIVISION: 301 CLAY STREET
SAN FRANCISCO 11, CALIFORNIA

183C51

Little Mills Story

(Continued from Page 68)

300 to 350 lbs. less than when they were burning coal screenings.

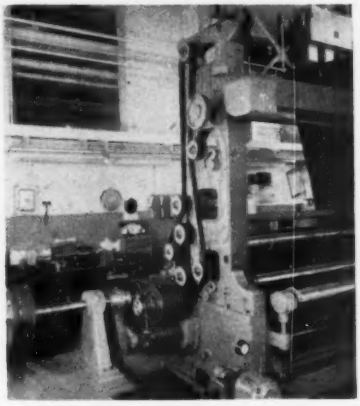
Maintenance jobs, repairs, even improvements and machining of some new parts can be done at the mill. In the machine shop are two lathes, one shaper, one drill press and a power saw, an unusual resource for a small mill.

But just as important, the Clouds have their machine shop in excellent personal hands. All this work is done by Louis Albers and his two sons, Lawrence and Carl, who work right along with him.

It's quite a family deal at West DePere for both the Clouds and the Alberses and everyone connected with it likes it that way.

The Chicago management of the company haven't anything much to worry about, at least about operation and production. In Chicago, at 600 South Michigan Ave., the officers of U. S. Paper Mills Corp. are: B. R. Feinberg, president; H. Shilling, vice president and general manager, and M. E. Feltenstein, secretary-treasurer. J. A. Turivas is sales manager.

Langston Slitter

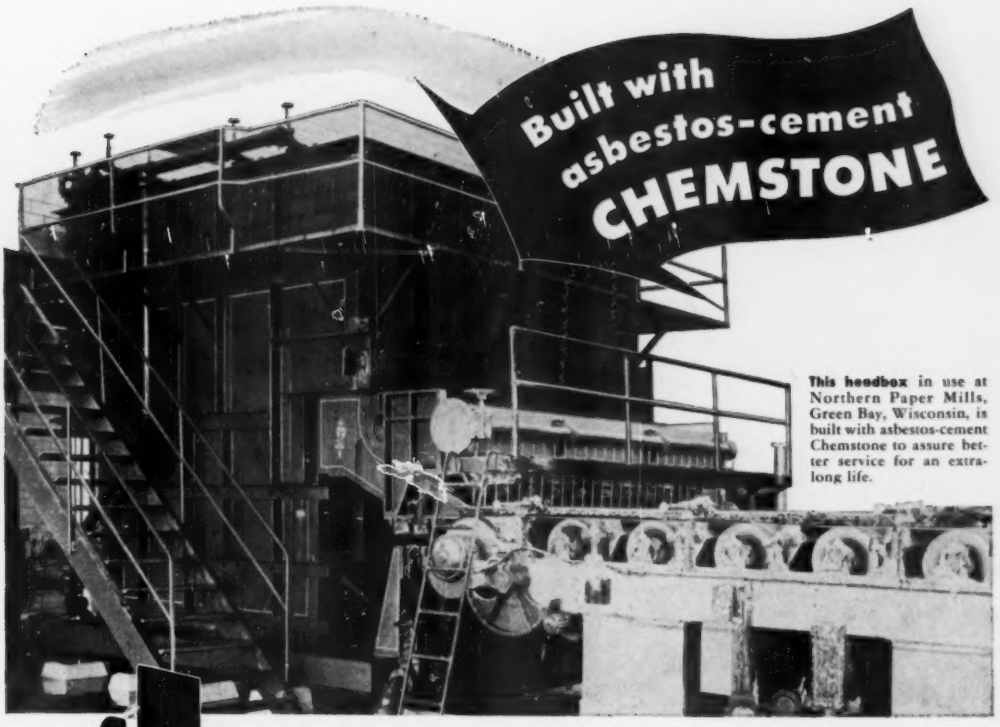


HAMMERMILL PAPER CO., Erie, Pa., has one of these machines in operation and two more soon to be. This is a new 92-inch DA Slitter and Winder manufactured by SAMUEL M. LANGSTON CO., Camden, N. J. The new machine is equipped with V belt drives and main drive gears eliminated. Note rear drum has variable pitch V belt sheave so relative speeds between drums can be adjusted. Picture shows belt drive with guard removed.

J. D. Watson Dies

JOHN D. WATSON, vice president and general manager, of Wisconsin Wire Works, died Aug. 23 in Appleton, Wis. at the age of 71.

At the time of his death, Mr. Watson was a director of the Pacific Coast Paper Mills of Bellingham, Wash. Born in Scotland he came to Appleton at the age of 7.



This headbox in use at Northern Paper Mills, Green Bay, Wisconsin, is built with asbestos-cement Chemstone to assure better service for an extra-long life.

...headboxes stay cleaner...last longer

Wonder *why* Chemstone* helps build headboxes, flow boxes, and consistency regulator boxes that not only *stay cleaner* but *last longer,* too?

It's because Chemstone is the *asbestos-cement* material with all three of these basic advantages that make it ideal for paper mill use:

Chemstone resists slime and bacteria. When flushing is necessary (as in the handling of some groundwoods) Chemstone boxes are easily cleaned by the simple process of hosing down.

Chemstone won't shrink or swell. Made of asbestos and cement, and integrally waterproofed, Chemstone has unusual dimensional stability. It is lightweight—yet exceptionally strong and durable to assure long service.

Chemstone resists chemical action. Like all Johns-Manville asbestos-cement products, Chemstone is free from metallic oxides . . . resists both mild alkalis and acids. Chemstone boxes are unaffected by most mill waters.

There are *better* boxes in store for your mill if you build them with Chemstone. It is available in sheets 48″ x 96″, in thicknesses from ¼″ to 1¼″. . . and is easy to work with ordinary metal-working tools. For further information about this Johns-Manville product designed for the paper industry, write for data sheet DS series 405. Address Johns-Manville, Box 290, New York 16, New York. In Canada, 199 Bay Street, Toronto, Ontario.

*Reg. U. S. Pat. Off.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville CHEMSTONE

MAKES BETTER BOXES

EDDY'S SULFITE BLEACH PLANT

This is a year of special significance to the E. B. Eddy Co. of Hull, Que., for it marks the 100th anniversary of the establishment of the business by Ezra Butler Eddy.

Today, the E. B. Eddy Co. is not only one of the oldest operators in Canada's pulp and paper industry, but one of the biggest with affiliations extending to the Pacific Coast, where Sidney Roofing & Paper Co. is now a wholly owned subsidiary.

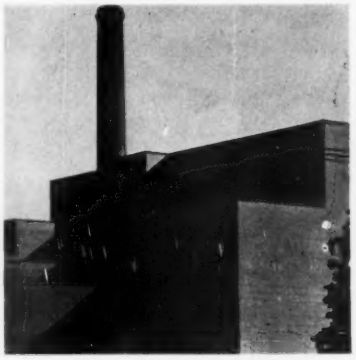
While a pioneer in the industry, the Eddy organization has consistently been noted for a progressive outlook. Typical of this attitude was the recent completion of one of the most efficient bleach plants on the continent.

E. B. Eddy, the founder, was a 24-year-old Vermonter who drifted into Canada in 1851 seeking employment and was among the first to visualize the industrial possibilities of the Hull-Ottawa region.

One of the modern multi-stage bleach plants now the vogue in this industry, resulting from a demand for up-grading product quality, has been operating over a year at The E. B. Eddy Co. at Hull, Que. Actually this plant is an extension of the Pulp Bleaching Co.-designed plant there and is now five stages with capacity for 150 tons a day of bleached sulfite pulp.

Preliminary design was by the company's chief engineer, A. N. Ball, and staff—Fred Wrangell, assistant chief engineer; Tom Foulkes, steam and power engineer, and Ralph Hollebone, architect. Detailed design was by Stadler, Hurter & Co., Montreal, under John MacArthur, project engineer.

The old chlorinator was converted from batch to continuous, and existing high density batch bleachers were used with two added towers in the final batch high density hypochlorite bleach stage. The



EDDY BLEACH PLANT

four preceding continuous stages are: Low density chlorination; high density caustic treatment; low density caustic soak and high density hypochlorite bleach. By-passes are provided for flexibility and maintenance.

Like other Eddy bleach plant buildings, the newest one is windowless to eliminate maintenance from corrosion of frames and sash. The concrete and steel building frame building has glazed surface Speedtile walls, Haydite roof, and concrete floors.

Equipment

Rate of flow of stock through continuous stages is controlled by a combination unit consisting of a DeZurik consistency regulator followed by a Sherbrooke stock volume meter, mounted in a common tile vat.

Chlorination Stage. One of two existing chlorinators 17 x 30 ft., was converted from batch to continuous upward flow by the installation of a Pulp Bleaching Co. rubber-lined agitator and overflow discharger supplied by Waterous. Chlorine gas is introduced in a Sherbrooke rubber lined single shaft chemical mixer, at base of the tower.

The chlorinated stock at 3% consistency after 1 hour retention time overflows from the top of the tower, and is pumped at 0.75% to a double unit Sherbrooke washer-thickener, white water dilution being added on its way. The pulp is washed in the cold phase. The first 8 x 10 ft. washer is a rubber covered unit. The second, 8 x 12 ft., is rubber covered and chrome nickel steel, and is equipped with showers and two rubber-covered press rolls. Pulp discharges at 16-18% consistency. Caustic is applied by a drop pipe ahead of the shredder and screw conveyor which discharges the pulp to the caustic stage.

Caustic Stage. The shredded pulp, soaked with caustic, drops into a Sherbrooke double shaft pulp mixer, where steam is added to raise the temperature to 120° F. to obtain the desired degree of caustic treatment. The pulp at 12% consistency discharges directly into the top of the steel, tile lined, high density caustic tower, 12 x 32 ft. At the base, after 2 hours retention, the pulp is diluted to 8-10% and withdrawn continuously by a Sherbrooke high density tower scraper and metering screw into an agitated dump chest where dilution is added to consistency of 3%. Stock is washed over a Sherbrooke, cast iron 8 x 10 ft. washer-thickener with washing showers and two press rolls, and having a shredder and screw conveyor discharge.

Caustic Soaking Stage. This low density continuous stage initially omitted from the system, utilizes the existing second batch chlorination 17 x 30 ft. tower and existing 8 x 6 ft. batch inter-stage washer.

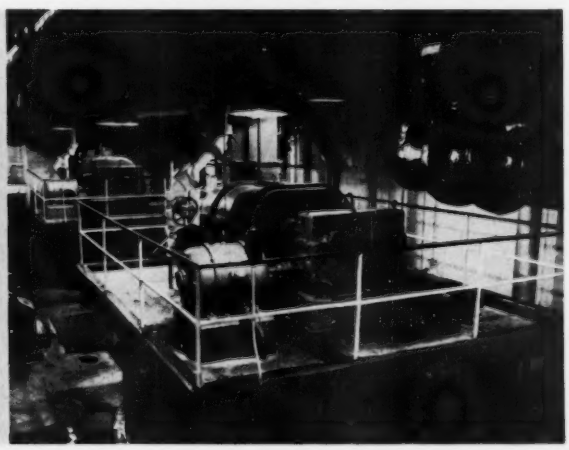
First Hypochlorite Stage. Calcium hypochlorite bleach, and caustic soda to control pH are added by drip pipes to the sheet leaving the caustic washer before the shredder, and the shredded pulp drops into a sherbrooke double shaft pulp mixer and from there at 12% consistency, and 90 to 100° F. directly into the high density 12 x 32 ft. tile-lined tower.

Mechanical equipment for this tower is a duplicate of the caustic tower equipment, but as this is the end of the continuous system, the dump chest capacity was made as large as space would permit, to provide surge capacity between the continuous and batch operations. Washing equipment is a duplicate of the caustic stage.

Second Hypochlorite Stage. Calcium hypochlorite bleach is added as in the previous stage, and shredded pulp is discharged into a

ALL OPERATIONS OF EDDY CO. bleachery are controlled from washer floor, instruments and controls being divided according to function. The main panelboard controls the principal process, flow-stockmeter, chemical flows, steam flows, etc., while individual stainless steel console panels, as shown here, control each washer and auxiliaries.

SHERBROOKE DOUBLE SHAFT PULP MIXER at Eddy Co.'s new bleach plant. Drive are mounted on top of continuous caustic and hypochlorite towers. Shredded pulp drops into mixer and from there at 12% consistency directly into high density tile-lined bleach tower.

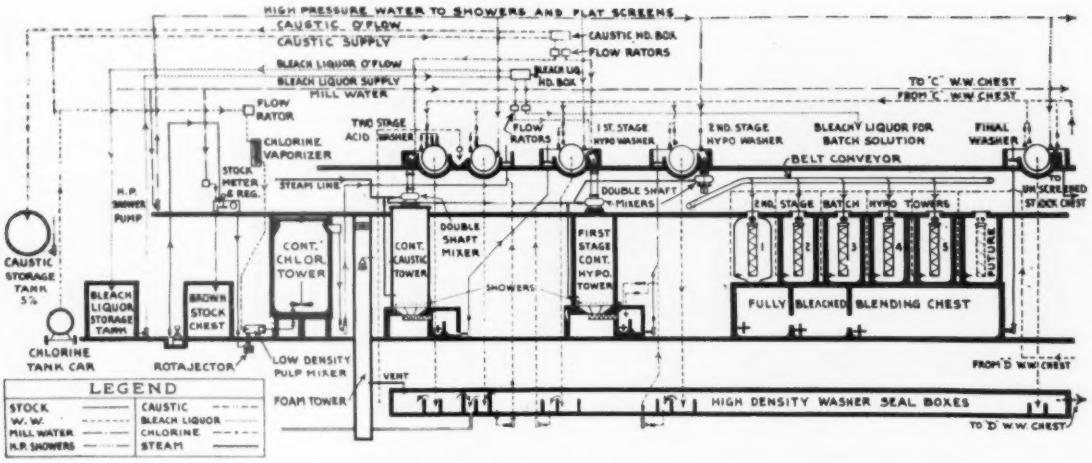


VALUE in a fine product reflects the experience and skills of its makers.

VALUE in Fourdrinier wires is a matter of record... paper quality and production records in mills throughout America reflect the fact that *Appleton Wires are Good Wires!*

APPLETON WIRE WORKS, INC.
APPLETON • WISCONSIN

FLOW DIAGRAM OF THE E. B. EDDY CO. BLEACH PLANT



high density pulp mixer. From the mixer, pulp at 12% consistency falls on a 24 in. rubber belt conveyor, from which it is ploughed off at any one of five points to feed the present five 11 x 20 ft. batch towers. The conveyor structure was built in reinforced concrete, and the belt rides in a tile-lined trough. The discharge ploughs operate hydraulically. The plough lies at an angle of 45° to the belt, and is designed to pick up rather than scrape the pulp off the belt, and discharges it to chutes at the side of the belt.

As the headroom under the conveyor is limited, the return belt is not enclosed, and is supported on return idlers. The batch towers consist of three existing Pulp Bleaching Co. high density circulating towers, and three new duplicate towers. Rubber lined equipment is by Waterous. All batch towers dump into a common agitated dump chest. Batch towers are dumped after 4¾ hours retention time. From dump chest, stock is pumped to a Sherbrooke rubber covered 8 x 10 ft. washer, and then discharged into the bleached unscreened stock chest.

Miscellaneous Equipment. All towers are of reinforced concrete construction, except the caustic tower, which is steel, and all are lined with Stebbins tile linings. All the washers are set in tile vats, tile lined, below the floor line and Semtile above the floor, also supplied by Stebbins.

All stock pumps are Canadian Allis-Chalmers. All white water pumps are Canadian Ingersoll-Rand double suction closed impeller pumps.

In the beachery, Armco rubber-lined pipe was used throughout. In the screen room and wet machine room, all piping is Armco welded steel pipe Lithcoted inside and out, supplied by R. F. Walsh and Company. The headboxes, flowboxes and stock spouting are of fabricated steel, Lithcoted both inside and outside.

Screen Room. In order to obtain the highest quality and cleanest pulp, it was found necessary to remove some of the fine heavy dirt particles entering the stock during the bleaching stages. This type of dirt has been traced to impurities in the bleaching chemicals and wear of the tile linings and pointings in the bleach towers and stock chests.

Screening equipment consists of four parallel lines of screens, two 14-plate Smythe flat screens per line, with 0.007 cut stainless steel plates followed by three Sherbrooke cylinder deckers, 48 x 132 in. in Lithcoted steel vats.

Besides an existing 72 in. Oliver Rogers wet machine, a new 80 in. Kamyr wet machine was supplied by Paper Machinery Ltd., to lap the increased tonnage of bleached pulp; connected up to run on screened bleached stock only.

Harold Foley, Jr., Killed

Harold Foley, Jr., 20, only son of Harold S. Foley, president of Powell River Co., Vancouver, B.C., was killed in an automobile accident Aug. 18.

Coating Conference

A Coating Conference of the Paper Industry is scheduled for May 5-8, 1952, to be staged at the Hotel Sherman in Chicago, in the heart of the slick paper industry. The meeting sponsored by TAPPI.

Powell River Adds To Wood Supply

Powell River Co., British Columbia newsprint and sulfite pulp manufacturer, is adding to its already extensive timber holdings by the acquisition of Salmon River Logging Co., operating a big logging camp at Kelsey Bay, east coast of Vancouver Island.

The company also purchased B.C. Manufacturing Co. and its affiliates, Westminster Shook Mills and Maple Ridge Lumber Co. Powell River will have its higher grade saw logs processed at these sawmills, and in turn the latter's logs not suitable for lumber will be routed to Powell River for pulp. Chippers and barkers will be installed at the New Westminster mills.

Stadler, Hurter & Co. Building Edmonton Mill

Stadler, Hurter & Co., Montreal and New York, are consulting engineers for the pulp mill to be built on the McLeod River, near Edmonton, Alta., by North Western Pulp & Power Co., a subsidiary of New Pacific Coal & Oil Co. (Pulp & Paper, August, p. 62.)

The mill plans ultimate production of newsprint, but first only ground wood will be made and shipped to the U. S.

One of the Women Behind Eastwood Wires

Josephine Van Dyke

Tests the "Mettle" of our Wires

Every spool of wire that we draw must pass three physical tests:

1. SIZE—diameters are checked on a special micrometer that makes it possible for us to measure our wires to one ten-thousandth of an inch.

2. TENSILE—the breaking point of each spool of wire drawn is measured under a pulling load to assure uniform strength of wire.

3. ELONGATION — this test determines whether the correct amount of "stretch" is in the wire—a vital factor in the life of the wire.

Through these tests we assure ourselves of a supply of strand wire of uniformity necessary to produce high quality fourdrinier wire cloth.

EASTWOOD-NEALLEY CORPORATION • Belleville, N. J.

TODAY, conservation of valuable materials from flue gases of black-liquor-fired recovery boilers *is more important* to the kraft paper industry than ever before. That's why Koppers has developed a special *horizontal-flow* electrostatic precipitator for this service.

Here's why you get more profitable recovery with Koppers-Elex electrostatic precipitators!

HERE'S THE RECORD*

Cleaning flue gases on a 250-ton recovery boiler, a Koppers-Elex precipitator bettered the *guaranteed recovery efficiency* of 92.5% by an *extra 2.5%*. This highly satisfactory performance was obtained even though the unit was operating under a *15% overload* . . . and was verified by tests made by the customer.

GUARANTEED recovery at any efficiency you specify! That's one big reason why more and more kraft mill operators specify Koppers-Elex electrostatic precipitators for profitable recovery of valuable sodium sulfate and sodium carbonate from black liquor processes.

Another big reason is *minimum outage time!* Expensive by-pass systems with loss of materials during inspection and maintenance are *eliminated* by Koppers double chamber design. Maximum recovery is assured because successive collection zones are separately energized and continuous dust removal is provided by a drag scraper which operates on a dry, easy-to-reach *flat* bottom. This is an important feature where chemicals are re-used!

Hundreds of Elex precipitators are in use today all over the world. *Koppers-Elex* electrostatic precipitators are designed, engineered, fabricated and erected *under one contract* by the Koppers Company . . . and each installation comes complete with "packaged" mechanical or vacuum tube power packs. If you have a gas-cleaning problem, write today to: Koppers Company, Inc., Precipitator Dept., 340 Scott St., Baltimore 3, Maryland.

***Guaranteed:** Koppers-Elex precipitators are guaranteed to equal or better (under tests made by your own personnel) any efficiency or residual content you specify.

KOPPERS

Koppers-Elex ELECTROSTATIC PRECIPITATORS

Personals

SOUTHERN NOTES

THEODORE H. DAVIS, district forester for the Champion Paper & Fibre Co., Canton, N.C., has been added to the staff of American Forest Products Industries as a forester. Announcement of his appointment was made in Washington, D.C., by Charles A. Gillett, managing director of the industry-sponsored organization.

JOHN P. SCHWEDE, director of exports for the Union Bag & Paper Corp., has left on an 18 months' trip to Central and South America. Mr. Schwede will make his headquarters in Costa Rica. He plans to visit all the major Latin American markets.

JAMES R. R. LIENTZ, general superintendent of the pulp and paper division, Union Bag & Paper Corp., is one of Savannah's busiest citizens this month in making general arrangements as chairman for these responsibilities at the Annual TAPPI Engineering Conference there. Besides, he is preparing to head up corrosion discussions at the meeting.

T. T. DUNN, vice president and general manager of the Union Bag mill and his staff, are going to be hosts to the Engineering Conference delegates at a barbecue.

CHARLES M. McCARTHY, president manager, *CLAUDE M. ADAMS*, assistant manager, and others at the Southern Paperboard Corp. mill, also are readying for the Savannah gathering as their company is giving a cocktail party for delegates.

D. J. BRETT, Jr., personnel manager of National Container in Jacksonville; *C. S. HEUSTIS*, manager of the container division at Southern Paperboard, and *KIRK SUTLIVE*, public relations manager of Union Bag, obtained some of the photographic scenes of Savannah and Jacksonville used on the cover and in this issue.

V. K. SHANNON has been named assistant division manager of The Mead Corp.'s mill at Sylva, N.C. He previously had been serving as assistant general superintendent of the company mill at Lynchburg, Va.

GEORGE HOWELL, formerly senior tour foreman of The Mead Corp.'s mill at Lynchburg, Va., has been named board mill superintendent. Walter Hartman was named laminated board superintendent at the Lynchburg mill.

CARL CLARK, of Clark & Vicario, Bronxville, N.Y., spent two months in Finland this summer where he concluded arrangements for manufacture in that country of the "Deculator" unit for which rights are held by The Rotareaed Corp. The company granted Finnish manufacturing rights is Tammerfors Linne-Och Jerm-Manufaktur Aktie-Bolag, of Tammerfors, Finland. Mr. Clark made the trip in company with *FRANK JEPSON*, of J. Madden Co., New York, who represents Finnish mills in the U.S. Mr. Clark said machinery manufacture was now the No. 1 industry in the country. Pulp and paper manufacture, which used to hold top position, has not fallen off, even though passed by machinery manufacture.

M. D. WOMACK, Lufkin, Texas, pulpwood dealer was successful bidder for 275,000 cords of pulpwood stumpage to be harvested from Angelina and Davy Crockett National forests over the next few years on a bid of $926,750 or $3.37 per cord. The sale was the largest on record in the South.

SOUTHERN BOTTOM LAND owners can secure a net return of $400 per acre by setting a cottonwood plantation, according to the (U.S.) Southern Forest Experiment Station. The cotton wood matures in 40 to 42 years, says the station. Costs of growing, exclusive of interest, only amounts to $50 per acre. The projected return does not include pulpwood from thinnings or tops.

MAJ. HENRY A. MAAS, woodlands and procurement chief for Southland Paper Mills, Inc., Lufkin, Texas, has become a grandfather for the third time. In this case, his daughter, Mrs. R. W. Mitthoff, El Paso, Texas, has a third son named Raymond Henry Mithoff.

CANADIAN NOTES

JOHN A. HANNA has been named assistant manager of operations for Bathurst Power & Paper Co. at Bathurst, N. B. *W. CLYDE BAGGS* is mill manager, and *GORDON ALLO*, manager of the box board department. *C. VINCENT CALLAGHAN* is process engineer. Announcement of these personnel changes was made by *J. G. CHALMERS*, administrative vice president. All the men involved have been with Bathurst for several years, Mr. Hanna's association with the New Brunswick organization extending over a quarter century.

JOSEPH HILLWOOD is the new purchasing agent for Brown Corp. at La Tuque, Que., succeeding *A. R. LAMBERT*, who has entered private business.

ELLIOTT M. LITTLE, president of Anglo-Canadian Pulp & Paper Mills, Quebec, has been elected a director of Albert E. Reed & Co. of London, England, manufacturers and converters of pulp and paper products in the United Kingdom.

EDWARD YOUNG is steam plant engineer for LongLac Pulp & Paper Co., Terrace Bay, having been transferred from Spruce Falls Power & Paper Co. at Kapuskasing, Ont.

New vice-president of St. Regis Paper Co. (Canada) is *JOSEPH M. HARNIT*, whose principal responsibility will be the manufacturing of multiwall bags and automatic filling equipment. He has been with the Canadian company for the past ten years. He first entered the industry in 1921 as plant manager for Bates Valve Bag Co. in Chicago.

GENE H. KRUGER, president of Richmond Pulp & Paper Co. operating the Bromptonville, Que., mill formerly owned by Brompton Pulp & Paper Co., predicts a daily production of 100 tons of newsprint soon.

W. E. PATTEE, formerly senior chemist of the E. B. Eddy Co. at Hull, Que., has been made control superintendent of the Laurentide division of Consolidated Paper Corp., Grand' Mere, Que., replacing A. S. MACDONALD, now assistant to the corporation's technical director.

GUNNAR GAVELIN, Swedish chemist, has been appointed development engineer for Northeastern Paper Products, which is in charge of research and development work for Anglo-Canadian Pulp & Paper Mills, Quebec City.

CLARENCE WALLACE, lieutenant-governor of British Columbia and president of Burrard Dry Dock, one of Canada's biggest shipbuilding concerns, has joined the board of directors of Powell River Co. at Vancouver, B.C.

WILLIAM G. BARRINGER has been appointed acting townsite manager for Pacific Mills, Ltd., at Ocean Falls, B.C. JOHN J. McLAUGHLIN is the new community relations superintendent.

HYDEN P. ELLIS, who started with Pacific Mills, Ltd., in 1928, is the chief logging engineer of Northern Pulpwood Co., logging subsidiary of the big Ocean Falls pulp and paper organization.

LEONARD L. HOWARD is assistant manager of Northern Pulpwood under OTIS D. HALLIN.

JAMES PETRIE, manager pulp division, Bloedel, Stewart & Welch, Ltd., Port Alberni, presented prizes to the winners at the company's annual golf tournament: J. S. JOHANNSON, H. R. MacMillan Export Co., low net; PETER DEMENS, superintendent, sawmill division, BS&W, low gross; A. MACZULAT, pulp division, high net, and T. NEALE, pulp division, high gross.

GLEB GOUMENIOUK, for several years development engineer for Powell River Co., who played an important part in the design of the headbox for the No. 8 news machine recently installed, has resigned to enter consulting practise in Vancouver, B.C.

WILBUR T. HOWARD, Montreal lawyer and a director of several eastern Canadian pulp and paper companies, has been visiting the west coast.

GLEN McPHERSON, formerly in the insurance business in Vancouver, B.C., has joined Alaska Pine & Cellulose Ltd., as assistant to WALTER C. KOERNER, managing director.

ROBERT AND COMPANY ASSOCIATES

96 POPLAR STREET • ATLANTA, GEORGIA

Consulting and Design Engineers to the

PAPER AND CHEMICAL INDUSTRIES

HAROLD R. MURDOCK, *Chemical Engineer*

PROCESS STUDIES • DESIGN • POWER PLANTS • INDUSTRIAL WASTE DISPOSAL

Our service simplifies

your paper work!

When you have paper production problems
remember that STEIN-HALL—
with its years of "know how"—
is eager to be of assistance.

Our salesmen...
more than just selling quality starches,
dextrines and gums...
are technical experts
...versed in applying these products
in actual use.

And those questions which
our salesmen cannot answer...
we will turn over to our fully staffed laboratory,
which is also at your beck and call.

At any time...
your nearest STEIN-HALL man
can be counted on for
prompt, thorough attention.

STARCHES, DEXTRINES AND GUMS
for the Paper Industry
LABORATORY-CONTROLLED FOR QUALITY
AND UNIFORMITY

HALLMARK ® QUALITY PRODUCTS

STEIN SH HALL

ESTABLISHED 1866

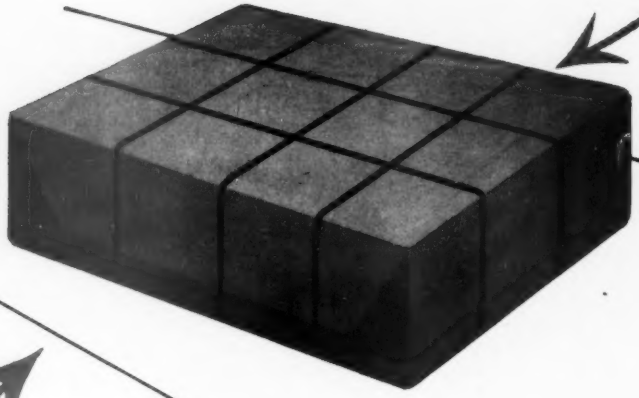
Branch offices in 16 cities in U. S. and Canada.

Lyddon & Co.

exporters of wood pulp
to all world markets

Parsons & Whittemore

paper exporters
wood pulp



London

Paris Zurich

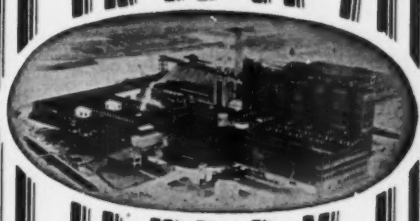
Stockholm Oslo

Sousse Montreal

Buenos Aires Sao Paulo

10 East 40th Street, New York 16, N. Y.

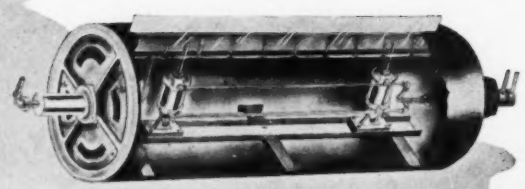
SOUNDVIEW

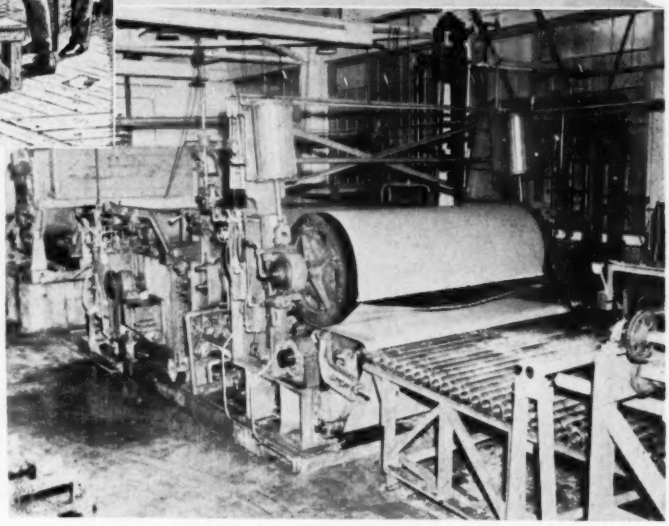


High Grade

BLEACHED
SULPHITE PULP

SOUNDVIEW PULP COMPANY
EVERETT WASHINGTON





F. C. HUYCK & SONS, Kenwood Mills supplied the view at upper left, showing how early cylinder machine operators slit fiberboard, as it came off the "make" roll—by hand with a knife. Slitting and removing material from the cylinder has always been a source of trouble and delay. Knives actuated manually and by hydraulic, pneumatic, electric, as well as cam, spring and lever actions, with mechanisms inside and out, were tied. Views at right, courtesy of Compressed Air magazine, show the automatic cutoff roll as finally developed by Noble & Wood and Raybestos-Manhattan, which is pneumatically operated and electrically controlled, through relays and an adjustable counter. TOP RIGHT—cut-out view of the roll and cutter; LOWER VIEW—roll in action with severed sheet coming off to roller conveyor. Raywood was name given these cut-off rolls.

ROBERT'S BURRS

INSURE

Lower Stone Costs
Better Pulp

Pacific Coast Supply Company

PORTLAND, OREGON · SAN FRANCISCO, CALIFORNIA

FREE

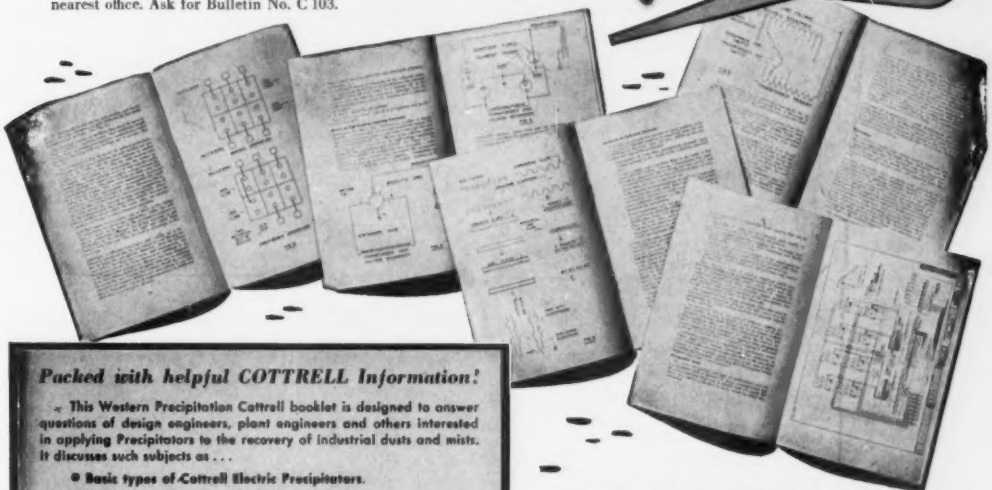
From Western Precipitation—the organization that pioneered the commercial application of Cottrell Precipitation...

IF YOU ARE ENGAGED in any phase of industry where the recovery of dusts, fumes, fly ash, mists, fogs or other suspensions from gases is a problem, you will find this booklet on the COTTRELL Electrical Precipitator helpful and informative.

Western Precipitation pioneered and installed the first commercial application of the well-known COTTRELL Electric Precipitator—Dr. Cottrell, the inventor, being a member of the company. And for more than 42 years Western Precipitation has consistently led in developing new COTTRELL advancements and techniques for recovering suspensions from gases, both wet and dry.

This 28 page booklet summarizes many of the basic facts you should know about modern COTTRELL Precipitators—the various types available, how they operate, principal types of electrode systems and rectifiers, shell constructions, etc. As long as the supply lasts, a free copy will be sent you on request to our nearest office. Ask for Bulletin No. C 103.

28 PAGES
of helpful facts to know about
COTTRELL
ELECTRICAL PRECIPITATORS



Packed with helpful COTTRELL Information!

This Western Precipitation Cottrell booklet is designed to answer questions of design engineers, plant engineers and others interested in applying Precipitators to the recovery of industrial dusts and mists. It discusses such subjects as...

- **Basic types of Cottrell Electric Precipitators.**
- **Principal parts of a Cottrell Precipitator.**
- **Mechanical and Electronic Rectifiers.**
- **Various types of Collecting Electrodes (rod curtains, corrugated plates, dual plates, pocket electrodes, etc.).**
- **Removal of Collected Material.**
- **Factors in Shell Construction (steel, concrete, brick, etc.).**
- **Operating Efficiencies and the Effect of Various Factors on Performance.**

...and many other basic Cottrell facts. Write for your free copy of Bulletin C103 today while supplies are adequate!

Western Precipitation is not affiliated with any other company in the field of electrical precipitation except its wholly owned subsidiaries, International Precipitation Corporation and the Precipitation Company of Canada, Ltd. Whether you are now contemplating the installation of a Cottrell Electrical Precipitator, or may be interested in such an installation at a future date, we can and will serve you in any part of the United States or other countries.

NOW SELLING
COTTRELL Precipitators
MULTICLONE Collectors
TURBULAIRE Spray Dryers
in all parts of the U. S. A. and foreign countries.

WESTERN
Precipitation
CORPORATION
ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS
Main Office: 1017 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA
CHRYSLER BLDG., NEW YORK 17 • 1 LaSALLE ST. BLDG., 1 N. La SALLE ST., CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

(Continued from Page 86)

its kind in the United States, was built for Camp by Newport News Shipbuilding Co. It is built along lines first developed in Sweden and later used to some extent in Canadian mills. It consists of a vat which will hold logs up to 16 feet in length, and in which the logs are agitated by a special roller chain equipped with lugs.

In operation the vat is filled with logs about 10 feet deep. The lugged roller chain moves under the pile and up the discharge side of the vat. Logs are caught by the lugs and carried toward the top. If the rising logs are not fully barked, the operator automatically draws in the lugs, or cams, and the rejected logs roll back into the drum. This rolling and falling provides the barking action, and there is no real tumbling as in usual barking drums. Steady streams of water spray onto the logs from each side of the vat to clean them and aid in bark removal.

The machine will bark a maximum of 130,000 feet during an eight-hour day, from which will come an actual saving of 75 cords per day converted to pulp chips from the clean slabwood. Mr. Johnson puts the saving at $9/10$ of a cord for pulp chips per thousand board feet produced for the lumber division. The barker has aroused so much interest that visitors from all over the world have come to Franklin to see it in action.

Bark from this operation falls down into conveyors beneath the barking vat and is carried off to the power plant furnaces—thus making the utilization of the log complete.

OLD ESTABLISHED BRITISH COMPANY with 75 years experience of British and European paper mills, seeks representation for the sale of American or Canadian pulp in Great Britain and Europe.

Will pulp producers interested in confiding their British and European sales to a firm of first-class integrity and reputation with a young and enterprising executive force, kindly contact BOX DJK, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Washington.

One of the principals of the RC British concern in question will be visiting North America in October and could discuss any proposition verbally at that time.

After the log has been barked completely it is carried on to the sawmill. As slabwood drops off the carriage from the Prescott band saw, it is carried by an old paper machine felt conveyor to a Murray 88-inch chipper and reduced to chips for the pulp mill.

Savings from the Rip Mill

The recent completion of a modernization program in the lumber division has also now made possible the reclaiming of scrap from the rip mill for pulp mill chips. A rubber belt conveyor line has been set up in the rip mill to catch all trimmings and edgings from this department.

This scrap is taken to a Carthage 48-inch chipper, and the chips are blown to the pulp mill chip storage tanks some 300 feet away.

Utilization at the mill is as important as conservation in the forest. Camp Mfg. Co. has ably demonstrated how it can be done.

Mechanical Engineer desires permanent position. Licensed 19 years, 31 years experience, last five years in Pulp and Paper Mill Piping and Layout. Desire connection in design, construction or operation. Qualified to supervise complete projects for Kraft Mills. Please reply to P & P Box No. 99, c/o PULP & PAPER, 71 Columbia St., Seattle 4, Wash.

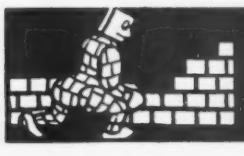
A. T. "FRED" HURTER (left), M.E.I.C., of Stadler, Hurter & Co., Consulting Engineers, Montreal, who also have done engineering design and layouts for Japanese industry. Their work has been for new 90-ton pre-hydraulized kraft pulp mill for Nippon Pulp Industries, Nagoja.

STEBBINS SEMTILE and SEMPLATE CONSTRUCTION

—is extensively used to provide better operation and longer life for vessels, chests, treating or storage tanks used in the pulp and paper industry.

Whenever you have a lining or tank problem consult a Stebbins engineer. This advice is based on experience gained over many years devoted to meeting the needs of pulp and paper mills.

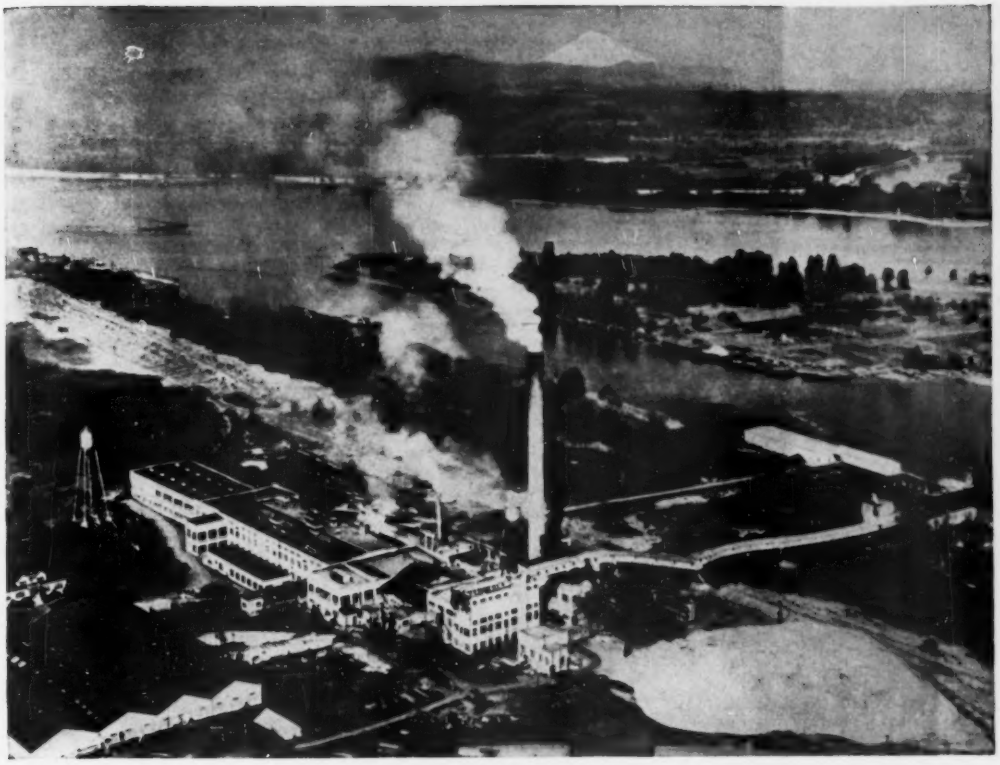
A consultation involves no obligation on your part and may save thousands of dollars in future operating and maintenance costs.



SEMCO

Stebbins Engineering Corporation

TEXTILE TOWER SEATTLE 1, WASHINGTON



St. Helens Pulp and Paper Company selects a C-E Recovery Unit

The $5,000,000 expansion and modernization program of the St. Helens Pulp & Paper Company at St. Helens, Oregon is now shaping up rapidly.

A feature of the new extension will be a C-E Recovery Unit which is now in process of engineering and fabrication. This unit will burn 875,000 pounds of dry, black liquor solids per 24 hours. Its design pressure is 675 psi but the initial operating pressure will be 250 psi. Later the operating pressure will be raised to 600 psi. Total steam temperature is 750 F.

Based on a sound, basic design, enhanced over the years by carefully developed improvements, the C-E Recovery Unit now enjoys a widespread, service-proved reputation for efficiency, reliability and operating economy. Naturally, more and more pulp and paper companies are selecting Combustion equipment both for new installations and for expansion and modernization of existing facilities. B-521

C-E

Combustion Engineering—Superheater, Inc.

200 Madison Avenue • New York 16, N. Y.

PRODUCTS FOR THE PAPER INDUSTRY INCLUDE RECOVERY UNITS, STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; ALSO PRESSURE VESSELS

Los Angeles—510 West 6th Street; San Francisco—116 New Montgomery Street; Seattle—Skinner Building

(Continued from Page 64)

This is equipped with concrete anchors and nine ESCO stainless steel flexible ball and socket joints, the latter making it possible for the pipe to follow the contours of the bottom of the bay. The outer 1,000 feet of this pipe lays at a depth of 300 feet water or more and is fitted with 110 three-inch diameter diffusor pipes. There is an opening at the end of the line equivalent to a ten inch diameter pipe.

It is expected enough diffusion will take place to meet specifications of the State Pollution Control Commission and that any barrier to migrating fish which has existed in the estuary of the Snohomish River has now been removed.

The magnitude of the job can be visualized by some quantities of materials used:

Stainless steel plate, bars and hardware: 117,000 lbs.; stainless steel castings: 30,000 lbs.; steel bar stock, plate and hardware: 175,000 lbs.; untreated lumber: 200,000 bd. ft.; treated lumber (16 pound Creosote): 162,000 bd. ft.; concrete: 1,900 cubic yards; reinforcing steel: 250,000 lbs.

Engineers L. M. Johnson, Soundview, and Lee E. Hill, Jr., Weyerhaeuser, were in charge of the project. E. R. Johnson of Everett, for land lines, Manson Construction, for submarine, and Howard S. Wright of Seattle, for pumps and collection, were contractors.

Rayon Production

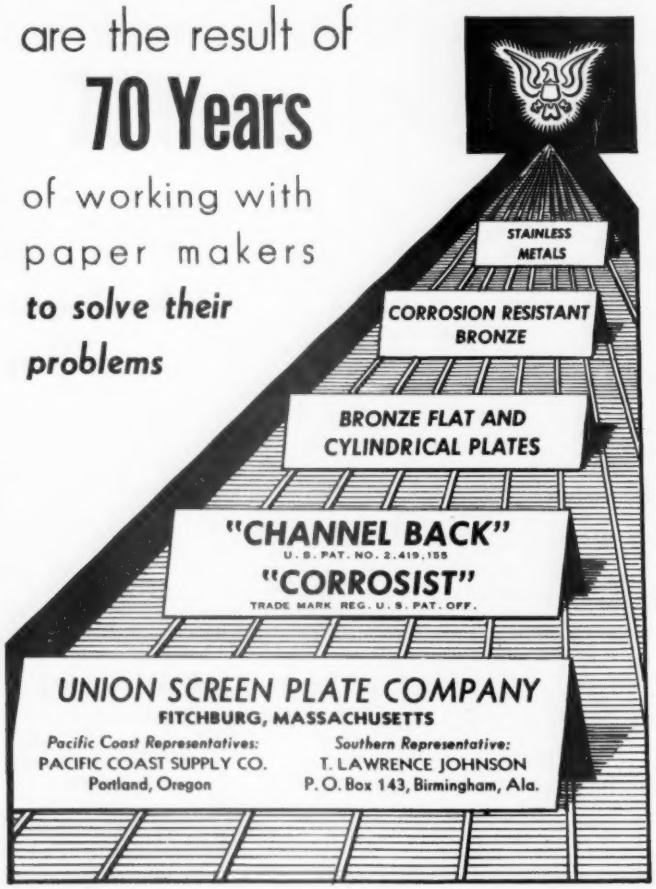
Output of rayon in the United States during the second quarter, 1951, again broke all records with a grand total of 336,900,000 pounds. 3% greater than the first quarter and 2% more than the previous record fourth quarter of 1950, says *Rayon Organon*.

UNION SCREEN PLATES

are the result of

70 Years

of working with paper makers *to solve their problems*



Du Pont Announces New Neoprene-Paper

After spending three years and almost a million dollars on research, the Du Pont Company announces it has developed a new and economical way to add its synthetic rubber, neoprene, to paper. It will supply neoprene and technical information to paper mills that wish to make such products.

Instead of coating or saturating the finished paper, as in older methods, the neoprene is now added in latex form to the pulp just before it is made into paper. The result is a new family of low-cost specialty papers made directly on the paper machine.

Advantages are wet strength, chemical resistance, and all-around improvement in physical properties, giving rise to superior paper products of many kinds. One now under development is a porch, or summer, rug for indoor or outdoor use. Woven of twisted neoprene paper, these rugs have excellent abrasion and wear resistance, can be washed with soap and hung up to dry without losing shape.

Disposable diapers are another promising possibility. Double-wall insulated bags for bottles or cans of beer use neoprene-treated paper, and it has undergone successful trials as gasket paper, multiwall bag, wrapping, boxboard, and filter paper.

Du Pont will not itself manufacture any of these papers. It will supply neoprene latex and technical assistance to the paper industry.

C-Z Elections

As reported last month, Crown Zellerbach Corp. has made R. A. McDonald, former executive vice-president, chairman of the executive committee. Other elections were: Thos. McLaren, re-elected vice-president and treasurer until retirement, which took place August 31, 1951. Mr. McLaren will remain in advisory and consulting basis. A. L. Bennett, present controller, was elected treasurer; Ralph S. Duns, assistant controller, was elected controller, J. Y. Baruh, one of the company's founders was elected honorary vice-president, as he also retired August 31 after 53 years service.

Vice-presidents Alexander R. Heron and A. B. Layton were elected to the executive committee.

FOR SALE

Three Trimby 72" Rotary Knotters. Stainless Steel Plates.

One Oliver Young type 8' x 8' Vacuum filter.

Two Pulp Bleaching 8' x 6' Vacuum filters.

Two Pulp Bleaching 6' x 6' Vacuum filters.

One Impco 8' x 6' Washer Thickener for tile vat with separately driven repulper.

Brunswick Pulp & Paper Co., Brunswick, Georgia

ORISKANY
WATERBURY FELTS
ARE MADE IN
ORISKANY, N. Y.
by H. WATERBURY & SONS CO.

Sold in the West

by JOHN V. ROSLUND

PACIFIC BUILDING - - PORTLAND, OREGON

Tel. CA 6161

THIS NEW BARKER IS PRECISION-BUILT

Revolutionizing previous concepts of cost, flexibility and efficiency, seven Hansel hydraulic log barkers are now in operation and eight more under construction. One unit has operated over a year, averaging 20 hours per day, without down time or maintenance.

It takes know-how and precision to build the Hansel barker. Rotor, stator and side plates involve high-strength steel castings ranging from inside finished diameters of 18" to 80". Machining to exceedingly close tolerances is needed to contain water pressures up to 1450 p.s.i. and to insure interchangeability of parts. With the aim of achieving an "exceptionally high standard of workmanship" the manufacture in the U. S. of all Hansel barkers to date has been entrusted to Washington Iron Works.

Photograph shows newest 60" model of Hansel barker assembled for final testing. Overhead suspension construction simplifies bark disposal.

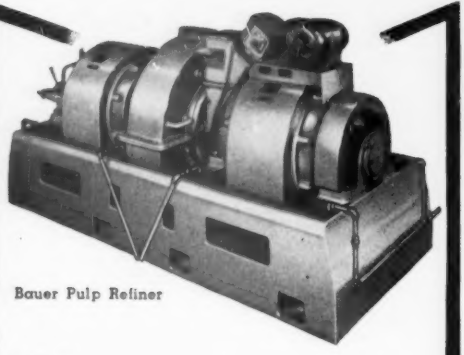
WASHINGTON IRON WORKS

Since-1882

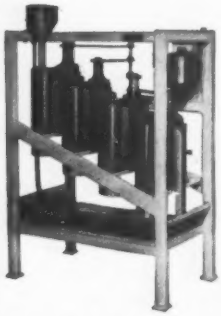
WASHINGTON IRON WORKS

1500 6th Avenue South Seattle 4, Washington

you get the proof of Bauer equipment in case histories

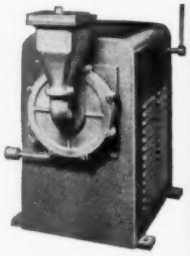


Bauer Pulp Refiner



Bauer - McNett Classifier

Mead Laboratory Beater



• Back of Bauer equipment for the pulp and paper industries is 73 years of process engineering and manufacturing experience. In that long period, Bauer machines have been serving hundreds of mills.

In the matters of pulp refining and laboratory research, also industrial grinding separation, we can cite many case histories of the way Bauer equipment behaves in actual usage. This gives concrete evidence of what the equipment will do for you on your own special problems.

You want such proof. We'll be glad to give it to you whenever you ask us. Write, wire, or phone.

THE BAUER BROS. CO.

1706 Sheridan Ave., Springfield, Ohio

News by the Mile for Millions

Consider the improved appearance of today's newspapers. Pictures are sharper, type impressions are clearer and easier to read. Better quality finishes have contributed directly to this change.

In every part of the country, paper mills rely on Butterworth Calender Rolls for smoother, better paper finishes at lower costs.

If you are experiencing calendering problems—losing production time or getting inferior finishes, then make this important test. Put a Butterworth Roll in the stack. See and feel the difference in the finish. Check the increased production time—extra hours of top flight service with fewer delays.

Butterworth Calender Rolls are made of the finest materials available. Built to meet your exact calendering needs and specifications. Your present rolls can also be refilled. Get the facts on better calendering today.

For full information, write or call H. W. Butterworth & Sons Company, Bethayres, Pennsylvania—40 Fountain Street, Providence, R. I. : : 1211 Johnston Building, Charlotte, N. C.

Butterworth
CALENDER ROLLS

ONE CONTRACTOR FOR ALL PHASES OF PULP AND PAPER MILL CONSTRUCTION

Complete plant construction, from preliminary planning, through site clearing, to construction, to machinery installation, is conducted by B.C. Bridge and Dredging Co. Ltd. In this way we provide continuous responsibility and teamwork at every stage of your project—give you an overall saving in both time and money

BRITISH COLUMBIA BRIDGE AND DREDGING COMPANY LIMITED

544 Howe Street
Vancouver, B. C.

Careful Craftsmanship

For Smooth Performance

GB BLACK LIQUOR EVAPORATORS

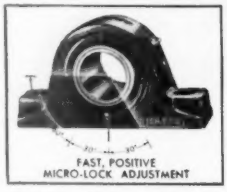
Expanding tubes into the tube sheet is a relatively minor operation in the big job of building smooth functioning and durable GB Black Liquor Evaporators from the blueprint to the finished stage. But even though it's just a small part of the overall construction job, it's IMPORTANT at GB. From long experience we know that **careful craftsmanship** must be the watchword of **every** construction operation to maintain those standards of performance for which GB Black Liquor Evaporators are so widely known. Our experienced engineers are at your service any time to discuss your requirements without cost or obligation.

GB GOSLIN-BIRMINGHAM MANUFACTURING CO., Inc.
BIRMINGHAM, ALABAMA
CHICAGO: F. M. deBeers and Associates, 20 North Wacker

BIG LOAD CAPACITY PACKED IN SMALL SPACE

Shafer ConCaVex Bearings have the design and construction features that keep them free-rolling, self-aligning and self-centering under *all* operating conditions at *all* times—without additional weight or size, without shoulders, without auxiliary means of absorbing thrust.

With Shafers you get stamina and performance advantages exceeded by none: Capacity for radial, thrust or any combined radial-thrust loads • High shock load capacity with low friction • Integral self-alignment within the bearing itself • Exclusive Micro-Lock for quick, simple bearing adjustment • Exclusive, self-centering "Z" Type Housing Seal • Compact sturdiness combined with the original Shafer ConCaVex design which has answered industry's every dependability need for more than 32 years. Complete engineering service for the asking. SHAFER BEARING CORPORATION, 801 Burlington Ave., Downers Grove, Ill.

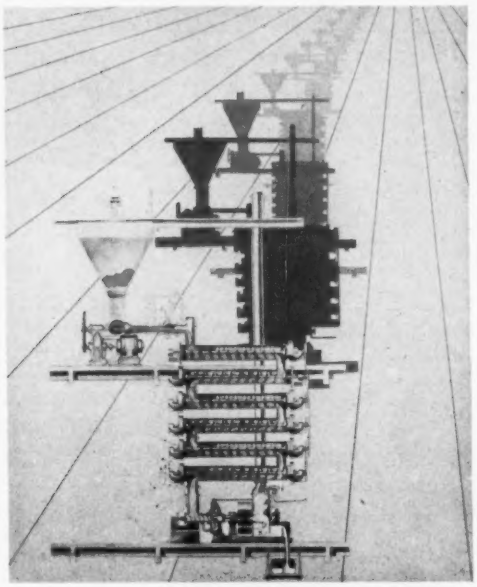


Ask for new Industrial Bearing Catalog No. 51.

SHAFER CONCAVEX

Pillow Blocks • Flange Units • Cartridge Units • Flange Cartridge Units • Duplex Units • Take-Up Units • Take-Up and Frame Units • Unmounted Bearings • Aircraft Control Bearings.

NOW! OVER 65 UNITS IN OPERATION



CHEMI-PULPER®

as used with the Asplund Defibrator

An ever-increasing number of installations in the pulp and paper industry evidences the outstanding operational and economy advantages of the Chemi-pulper. Year after year, more installations are made in mills producing various grades of pulp for specific requirements, using either hard or soft woods, or mixtures of such woods. These pulps are used for making .009 for corrugating; flooring, roofing and automotive felts, and insulating board.

Reasons why the Chemi-pulper paces the trend towards continuous pulping are described in the Chemi-pulper Bulletin, yours for the asking.

Manufactured and sold in Canada by Alexander Flock Limited, Ottawa, Ontario

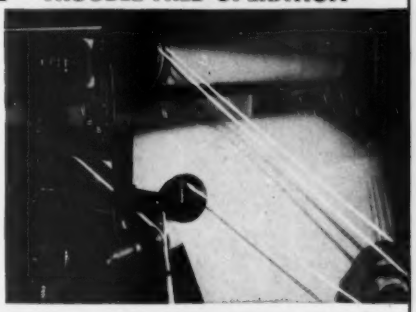
PAPER and INDUSTRIAL APPLIANCES INC.
122 EAST 42nd STREET • NEW YORK 17, N. Y.

MR. PAPER MAKER:

YOU TOO CAN PROFIT FROM WRINKLE-FREE — TROUBLE-FREE OPERATION

with...

Mount Hope



FREE WHEELING EXPANDERS!

More and more paper makers are becoming aware of the outstanding advantages of the Mount Hope Free Wheeling Expander.

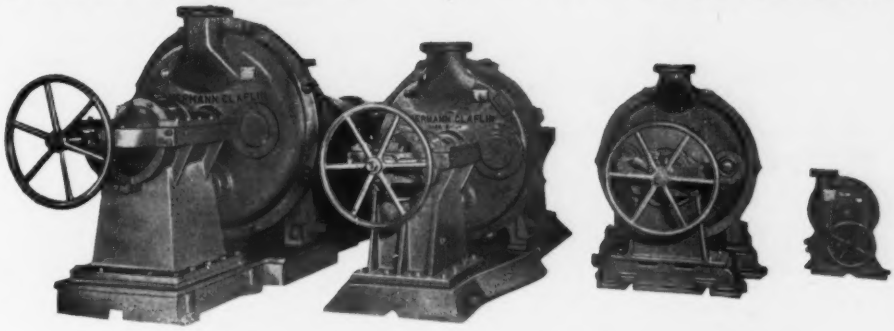
1. Eliminates wrinkles and creases.
2. Maintains maximum width of paper.
3. Assures trouble-free operation — the free turning roll prevents paper spoilage and eliminates costly waste.
4. All ball bearing mounted neoprene sleeve.

TODAY - send for bulletin EPV for complete details, prices. No obligations.

MOUNT HOPE MACHINERY COMPANY, 15 Fifth St., Taunton, Mass., U. S. A.

MOUNT HOPE FREE WHEELING EXPANDER

HERMANN *Improved* CLAFLIN



CONTINUOUS BEATER & REFINER

EXCLUSIVE SALES AGENT: THE EMERSON MFG. CO., LAWRENCE, MASS.

THE HERMANN MANUFACTURING CO.

LANCASTER, OHIO

PRODUCTION PROBLEMS

got you up a creek?

● The function of our Technical Sales Staff is to help solve various production problems in the field. These men are constantly working with new products and techniques—perhaps this experience would be helpful in smoothing out production sore spots in your operation.

Our basic, continuing research in starch chemistry is unsurpassed . . . under the direction of the foremost research men in this field.

Make the most of these facilities . . . no obligation of course.

For uniform quality products . . . for a dependable source of supply . . . depend on Corn Products Refining Company.

GLOBE
Starch for the beaters and for enzyme conversion;

AMIJEL
for the beaters;

CORAGUM
for corrugating; and

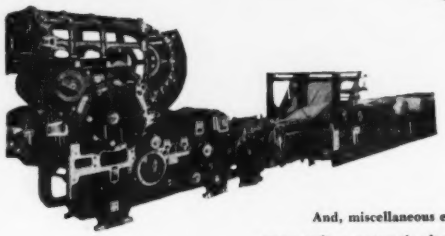
LAM-O-DEX
for laminating.

Write to

CORN PRODUCTS REFINING CO.
17 Battery Place • New York 4, N. Y.

Globe, Amijel, Coragum and Lam-o-dex are registered trade-marks of Corn Products Refining Company, New York, N. Y.

WEBER BAG MACHINERY S.O.S. SATCHEL BOTTOM CELLOPHANE

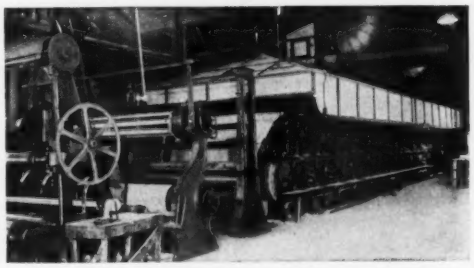


We are also interested in your special engineering or designing problems. Write us anytime . . . no obligation.

And, miscellaneous equipment such as automatic photocell localizing equipment and compensators for synchronizing print and cut-off for various types of bag machines, sheeters, edge alignment control, tensioning, unwind roll stands, etc. Ask us for complete details. . . . Weber Bag Machinery is standard equipment throughout the world.

Members, Packaging Machinery Manufacturers' Institute

H. G. WEBER & COMPANY, INC.
ENGINEERS AND MANUFACTURERS
KIEL • WISCONSIN



AMAZING SUCCESS OF THE COCHRANE C-B SYSTEM IN THE PAPER AND CORRUGATED BOARD INDUSTRY

Fuel savings of 25% and production increases of 17% have been reported from the use of the Cochrane C-B System of Condensate Return. This is a closed circuit return system which drains condensate from equipment returning it to the boiler at little loss in temperature or pressure. Heat units are put back to work at corrugators, combiners and plates effecting remarkable fuel savings and production gains.

Write for publication 3250 which tells the whole story of the C-B System and the remarkable savings and production records it has achieved.

COCHRANE CORPORATION
3130 N. 17th Street, Philadelphia 32, Pa.

COCHRANE C-B SYSTEM
CONDENSATE RETURNED TO BOILERS AT HIGH PRESSURE AND HIGH TEMPERATURE

HAM FELTZ says:

COME ON IN... the water's fine!

Wet felts ain't wet until you wet 'em. Some of 'em shed water like a duck's back 'stid of leakin' it out through the spaces between the threads.

My idee of a good wet felt is one that lets the water run through as easy as a fish net.

Naturally that means Hamilton Felts—some folks calls 'em Shuler Felts. I calls 'em durn good felts—as leaky as old shoes and as tough as the hide of an allegator.

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

Hamilton Felts

MIAMI WOOLEN MILLS *Established 1858*

SHULER & BENNINGHOFEN, HAMILTON, OHIO

Soda Ash • Borax • Salt Cake

AMERICAN POTASH & CHEMICAL CORP.

3030 West 6th Street Los Angeles 54, Calif.

Nothing Wears Like

GRIFFITH RUBBER MILLS

Rubber

RUBBER COVERED ROLLS of every type and size can be handled by Griffith Rubber Mills specialists. Pioneers in the field, Griffith has developed new methods and specially designed machinery to give superior service. At Griffith the only machinery in the West for multiple drilling of suction rolls is available.

TANKS, PIPES, FITTINGS and other equipment are protected against chemical attack, contamination, rust and abrasion by Griffith installed protective rubber coatings. Rubber linings specially developed to meet the needs of the pulp and paper industry add years of service to irreplaceable equipment.

DOCTOR BLADES and DECKLE STRIPS manufactured by Griffith Rubber Mills are made from rubber compounds specifically developed to give greater efficiency and longer life.

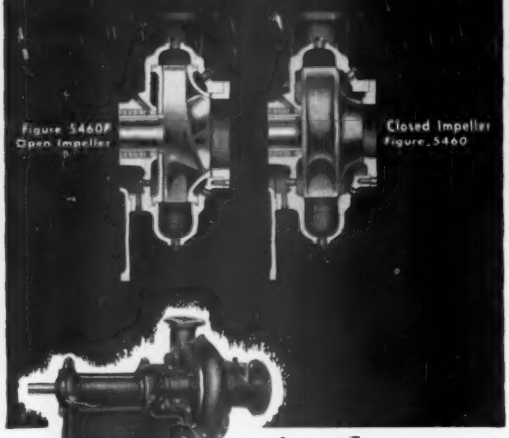
Pulp and paper mill rubber requirements are a specialty with Griffith Rubber Mills. The complete facilities of our research department and testing laboratory are available to develop solutions to your special industrial problems.

GRIFFITH RUBBER MILLS

Quality Rubber Products Since 1911

2439 N. W. 22nd AVE., PORTLAND, OREGON

2 are better than 1



..when it comes to Pumping Stock!

No one style of pump can efficiently handle *all* types of paper stock. That's why Fairbanks-Morse developed two types of impellers for paper stock pumps.

Figure 5460P pumps have open impellers . . . the ideal type for handling clean, homogeneous stock of heavy consistencies.

Figure 5460 pumps have the famous two-vaned, closed impellers . . . best for handling fibrous and stringy stock.

In either style, Fairbanks-Morse Pumps give you the efficient, economical, dependable performance that characterizes all Fairbanks-Morse Pumps. Remember, for every paper and pulp mill need, there is a Fairbanks-Morse Pump that will exactly meet your requirements. For pump selection assistance, see your Fairbanks-Morse pump dealer, branch pump engineer, or write Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE,

a name worth remembering

PUMPS • SCALES • ELECTRIC MOTORS • GENERATORS
LIGHT PLANTS • DIESEL, DUAL FUEL AND GASOLINE ENGINES

TC TENNESSEE CORPORATION

Sulphur

Many former users of Sulphur have switched to *Sulphur Dioxide, and are finding that Sulphur Dioxide* is just as effective and as economical. There are *numerous cases in many different industries where this* conversion has been made and the results have been *most satisfactory. Perhaps Sulphur Dioxide can be just* as effectively adapted to your operation. We would be *pleased to have one of our representatives consult with* you—no obligation to you, of course.

SULPHUR-DIOXIDE

HIGHEST QUALITY

SO_2

The Tennessee Corporation is in a position today to supply highest quality Sulphur Dioxide in Cylinders, Ton Drums, and Tank Cars and Tank Trucks. Below are a few of the industries now using Sulphur Dioxide.

TEXTILE PAPER CHEMICAL
PETROLEUM CLAY LEATHER TANNING
PAPER PULP FOOD PROCESSING

For further information wire, 'phone or write the Tennessee Corporation, 619 Grant Building, Atlanta, Ga.

TENNESSEE TC CORPORATION
619 Grant Building, Atlanta Ga

Another **ERKOTE** Mastic Application

ERKOTE Corrosion Resisting Mastic is protecting hundreds of similar installations in the Paper, Oil, Rayon, Rubber and Chemical industries against costly corrosive action.

This Bleach Plant Licked Corrosion

Erkote 2X Corrosion Resisting Mastic protects this costly equipment from acid fumes

Chemicals used in the paper making industry are rough on steel tanks and other expensive equipment. ERKOTE 2X Corrosion Resisting Mastic provides a durable finish equal to 25 coats of paint, and assures lasting protection against moisture, gas penetration and other corrosive and abrasive agents.

ERKOTE Products . . . your assurance of *undivided* responsibility

Because we develop and manufacture both mastics and paints we can supply the exact surface coating for your requirements. And because we furnish our own trained crews to apply and maintain ERKOTE products with our own special equipment we assume *full responsibility* for the quality of materials and workmanship.

ERKOTE TECHNICAL COATINGS — FOR USE WHERE PAINTS FAIL

EARL PAINT CORPORATION
240 Genesee Street
UTICA, NEW YORK

A SPECIALIZED SERVICE TO THE PAPER INDUSTRY

- ENGINEERING
- PATTERN MAKING

MODERN MACHINE SHOP AND FOUNDRY OPERATIONS

BACKED BY OVER 65 YEARS EXPERIENCE

MURCO Portable Wood Chipper — compact unit.
MURCO Stainless Steel Flat Screen
MURCO Multiple Knife Wood Chipper
Stainless Steel Pipes and Fittings
MURCO Windershafts
MURCO Level Vibrating Double Deck Chip Screen

To the paper industry we offer a complete service including engineering, pattern making, modern machine shop facilities and foundry operations—all top quality because of our over 65 years' close association with the needs of paper manufacturers. No obligation for complete details and engineering recommendations

Consult us... When considering modern equipment to meet today's need for high quality production at lower cost.

D. J. MURRAY MANUFACTURING CO.
WAUSAU WISCONSIN

Quit worrying about "downtime" and do something!

SARAN LINED steel pipe

Many reasons for "downtime" are unpredictable—BUT lost production due to pipe repairs and replacements is very definitely in the realm of your control! Follow the lead of many of the country's leading manufacturers, install dependable saran lined steel pipe—that means long term operation at a minimum maintenance cost.

Consider these advantages: Saran lined steel pipe provides excellent corrosion resistance, high pressure strength, superior rigidity, and its ease of installation requires NO special tools or handling.

These advantages are important to you—now more than ever before, so investigate saran lined steel pipe today. Mail this coupon to the Saran Lined Pipe Company for full information. *Saran lined steel pipe is manufactured by The Dow Chemical Company.*

Distributed by

Saran Lined Pipe COMPANY

2415 BURDETTE AVE., FERNDALE, MICH.
With Offices in: New York • Boston Philadelphia • Pittsburgh • Chicago Tulsa • Portland • Indianapolis • San Francisco • Houston • Denver • Seattle Los Angeles • Cleveland • Charleston, S. C. • Toronto

send today!

Please send me your catalogue containing detailed information on Saran Lined Pipe, Valves and Fittings.

Name_____

Title_____

Company_____

Address_____

City_____

State_____

SP-85

SARAN LINED PIPE
a
DOW
product

RUNS SMOOTHER, GRINDS BETTER, COSTS LESS . . it's the ROGERS "NT"

More and more maintenance men in the pulp and paper industry have come to know . . . and *depend* on the ROGERS NT for efficient care of chipper, paper cutting and all other straight knives.

And it's no wonder, for this fully *automatic* grinder gives dependable *precision* service. All the latest grinding features are included.

11 sizes for knives up to 160" long.

WRITE FOR BULLETIN "NT"

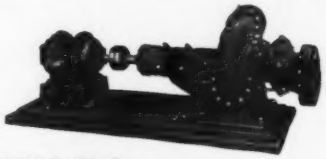
Inquire, also, about Rogers famous CC-3 . . . the efficient circular knife and slitter grinder.

A Leader in Grinding Equipment Since 1887

SAMUEL C. ROGERS & CO.

223 Dutton Ave. Buffalo 11, N.Y.

Positive Flow
Non-Clogging Pump
For Stock Handling



GOULDS CENTRIFUGAL

Diagonally Split Casing
Warped Vane Positive Flow Impeller
FOR ALL CONSISTENCIES
AND
TYPES OF PAPER STOCK

Distributed by

R. H. WADE & CO.
SINCE 1865

PORTLAND 14 • SEATTLE 4
Pump Headquarters in the Pacific Northwest

OUR SERVICE DEPARTMENT stands ready to serve you in your pump equipment needs regardless of make of pumps.

YOU CAN DEPEND ON PRODUCTS FROM "PUGET SOUND"

Sound design and workmanship in steel plate or sheet metal products for your plant mean long service, low maintenance cost and steady operation. Illustrated, chlorine evaporators of solid nickel.

PUGET SOUND SHEET METAL WORKS

Fabricators in all metals, 30 gauge to 1 inch

3670 E. MARGINAL WAY SEATTLE 4, WASH. MAin 0176

PSSM SINCE 1900

Do you know the news of the Pulp, Paper and Cellulose Industries?

SUBSCRIBE NOW to PULP & PAPER. Our WORLD REVIEW NUMBER is included in subscription rates below:

1 YEAR $3.00, 2 YEARS $5.00, U. S., Canada, Mexico and other member nations of Pan-American Union.

1 YEAR $4.00, 2 YEARS $7.00 in other countries.

Fill in this coupon NOW and return to

PULP & PAPER

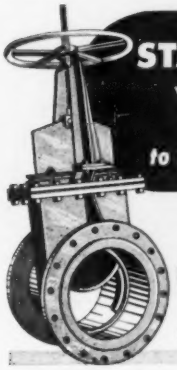
71 COLUMBIA ST., SEATTLE 4, WASH.

NAME .....

COMPANY ..... POSITION .....

ADDRESS .....

CITY AND STATE .....



STAINLESS STEEL VALVES

to meet Your specific need

PROMPT DELIVERY

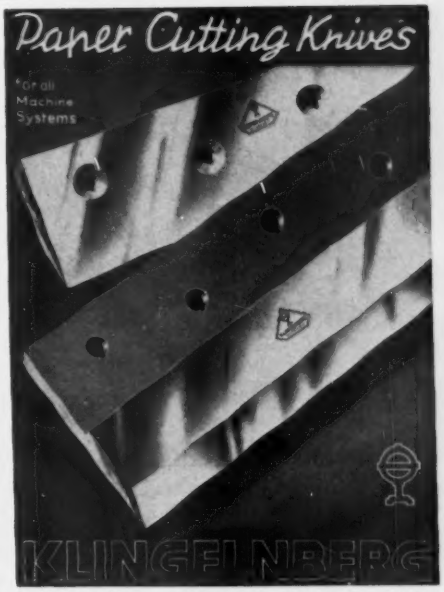
SPECIAL VALVE ORDERS FILLED WITHIN TEN DAYS

FABRI-VALVE CO. OF AMERICA

2100 No. ALBINA AVE. • PORTLAND 12, OREGON

Paper Cutting Knives

for all Machine Systems



KLINGELNBERG

No steel restrictions—an additional source of supply for you—A trial order will prove to your satisfaction that no better knife can be made—100 years devoted to making knives.

Exclusive Pacific Coast Agents

HEYER SALES & ENGINEERING CO.

1003 Washington Bldg. Tacoma, Wash.

Pacific Coast Headquarters

STAINLESS STEEL WELD FITTINGS

1½" to 6"

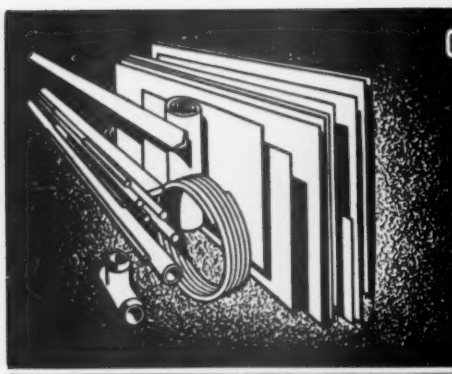
WELD FITTINGS

Carried in stock

We have one of the largest inventories of Stainless Steel weld fittings in our area and are prepared to quote for immediate shipment on most sizes. We also specialize in fabrications to your design.

NORTHWEST COPPER WORKS, INC.

2321 No. Randolph St., Portland 12, Oregon



COPPER · BRASS · BRONZE · STAINLESS STEEL

DISTRIBUTORS

SHEETS · PIPE · TUBING · BARS

FITTINGS · VALVES · NUTS · BOLTS · NAILS

ALASKAN COPPER & BRASS COMPANY

Stainless Steel

SEATTLE 4
902 1st Ave. So., El 4494

PORTLAND 14
34 N. E. 7th Ave., Ea 6188

DEZURIK EASY-OPERATING PLUG VALVES

TESTED AND PROVED

IN A THOUSAND MILL USES

There's hardly a valving job in pulp-and-paper mill operation where DeZurik Valves haven't been *proved superior* in actual, successful service. They're known throughout the industry for leak-free, trouble-free performance on all types of flow, from air to clay, from fibrous matter to resinous compounds. The exclusive DeZurik **RUBBER-FACED PLUG** is self-compensating—it keeps closing drip-tight *every time on any line!*

DEZURIK SHOWER CO.

SARTELL, MINN.

If it Flows . . .

Flex-Valve it

FLEX-VALVE is the ideal choice for handling such materials as those listed—either dry or in suspension—at temperatures up to 210 deg.

Resists both abrasion and corrosion; eliminates clogging, plugging, building up; absorbs vibration and misalignment.

Open—it's as free of obstruction as the pipe itself. Closed—it's bubble-tight and it closes tight on all of these materials.

Available in either hand or air operated types in sizes from ½ to 12 in.

Users have found FLEX-VALVE to be the low-cost solution to tough valving problems. If your present valves aren't 100% effective, take a look at this one. Catalog 455 gives details.

Flexible Valve Corporation

443 COMMERCIAL AVE. • PALISADES PARK, N. J.

HERE'S *PROOF* OF *RIETZ* PERFORMANCE!

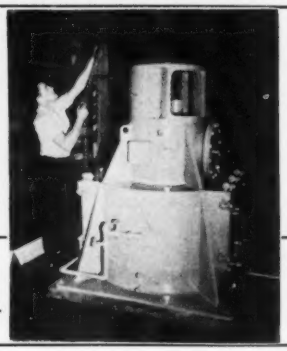
① DEFIBERIZED STEAM COOKED CHIPS at 4% consistency—24 tons per day—75 HP

② SEMI-CHEMICAL CHIPS at 4% consistency—48 tons per day—75 HP

③ SULPHATE KNOTS AND SCREEN REJECTS at .75% consistency—35 tons per day—50 HP

④ GROUND WOOD REJECTS from centrifugal screens—8 tons per day—75 HP

⑤ SHREDDING WOOD at 50% moisture content to minus 3/16 particle size at 14 tons per hour—75 HP

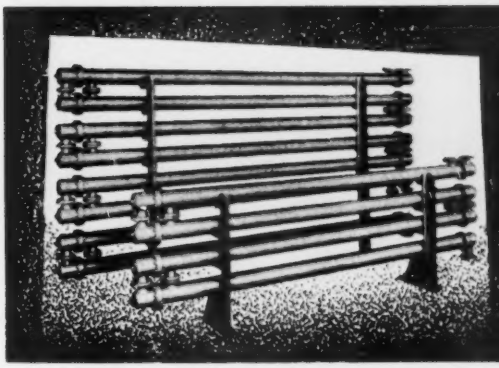


RIETZ REFINERS

A Product of Rietz MANUFACTURING CO.

150 Todd Road, Santa Rosa, Calif.

Write for Technical Bulletin No. 104



COPPER - BRASS - BRONZE - STAINLESS STEEL
DESIGNERS AND FABRICATORS

Developed by ALASKAN for use in the ammonia base recovery system at the Crown Zellerbach Pilot Plant at Lebanon, Oregon, is this multipass heat exchanger of the full contra-flo principle.

The first of its kind in the Pacific Northwest . . . designed and built by ALASKAN . . . a leader in large scale engineering and fabrication in corrosion resisting metals.

ALASKAN COPPER WORKS
3606 E Marginal Way Seattle 4

CHEMICAL LININGS, INC.
500 Trust Company Bldg.
WATERTOWN, NEW YORK

DESIGN AND INSTALLATION
ACCUMULATOR LININGS — DIGESTER LININGS
TILE TANKS — TILE LININGS

203 White Building
Seattle 1, Washington
MAin 0600

HANSEL ENGINEERING COMPANY
Consulting Engineers

Specialists in Hydraulic Barking
and Wood Preparation

1500 Westlake Avenue North, Seattle, Washington
1637 West Broadway, Vancouver, B.C.

Serving **JAPAN**
C.T. TAKAHASHI & CO.
IMPORTERS and EXPORTERS
216-218 Third Avenue South, Seattle 4, Wash.
Established 1898

Exporting:

All Grades of Pulp

Pulp and Paper Mill Machinery and Supplies

Preliminary Reports, Layouts, Estimates and Designs for Kraft, Sulfite, Dissolving and Semi-Chemical Pulp Mills, Paper and Board Mills.

In Japan write or telephone
C. T. TAKAHASHI & CO., TOKYO
Room 888 Marunouchi Bldg.
Telephone
WADA-KURA (20) 3631 or 3632

Branches:
New York — Vancouver, B.C.
Los Angeles — Taipeh, Formosa

WEYERHAEUSER

BLEACHED SULPHITE — BLEACHED SULPHATE

APPLETON FELTS
FOR
UNIFORMITY
DEPENDABILITY
SERVICE, DESIGN
AND FINISH

Appleton Woolen Mills
APPLETON, WIS.

SULPHITE MILL ACID PLANTS

SULPHUR BURNING PLANTS
GAS COOLERS—SURFACE AND SPRAY TYPE
JENSSEN TWO TOWER ACID SYSTEMS
JENSSEN PRESSURE ACID SYSTEMS
JENSSEN AUXILIARY PROCESS TOWERS
RECOVERY PLANTS—COOKING ACID

SOLUBLE BASE ACID PLANTS
SEMI CHEMICAL PLANTS
JENSSEN SO_2 ABSORPTION SYSTEMS
FOR BLEACH PLANT APPLICATION
SULPHUROUS ACID PREPARATION

G. D. JENSSEN CO. INC.,
WATERTOWN, NEW YORK
Western Representative:
James Brinkley Co., 417-9th Ave. So., Seattle, Wash.
FOUNDED 1915

MERRICK FEEDOWEIGHT

Accurately Feeds by Weight
Continuously Totalizes Amount So Fed
Entirely Self-Contained
MERRICK SCALE MFG. CO.
Irving R. Gard & Company
185 Summer St., Passaic, N. J.
Lewman Building, Seattle 4, U. S. A.

W. H. RAMBO

Industrial Plant Engineer
SPECIALIZING IN
DESIGN—ESTIMATES—SUPERVISION—CONSTRUCTION
PAPER MILL WOOD ROOMS, WOOD PRESERVATION
SAWMILLS, WOODWORKING and VENEER PLANTS
Loyalty Building **BEacon 5102** **Portland 4, Oregon**

J. E. SIRRINE CO.
Greenville, South Carolina *Engineers*

PAPER & PULP MILLS • WASTE DISPOSAL • TEXTILE MILLS •
APPRAISALS • WATER PLANS • STEAM UTILIZATION •
STEAM POWER PLANTS • HYDRO-ELECTRIC • REPORTS

THE RUST ENGINEERING COMPANY

Engineers and Constructors
Pittsburgh, Pa.
Portland, Ore. • **Los Angeles**
Complete Service for
PULP AND PAPER MILL PLANTS AND FACILITIES
MODERNIZATION, DESIGN, CONSTRUCTION, and MAINTENANCE

C. M. GUEST & SONS
Builders

GREENSBORO, N. C. ANDERSON, S. C.

Paper & Pulp Mills • Waste Disposal • Water Filtration
Steam Power Plants • Process Piping • Textile Mills
SERVING THE INDUSTRIAL SOUTH for MORE THAN FIFTY YEARS

PULP BLEACHING COMPANY

71 Columbia St., Seattle 4, Wash.
EQUIPMENT FOR
CELLULOSE PURIFICATION
AND RELATED PROCESSES

QUALITY CHROMIUM PLATING

For rolls, screen plates, slice lips, etc.

CRODON
CHROMIUM CORPORATION OF AMERICA
New York Waterbury Cleveland Chicago

EMBOSSING ROLLERS

Roehlen Engraving Works, Inc.

324 St. Paul St., ROCHESTER 5, N. Y.
MFGRS. OF ENGRAVED EMBOSSING ROLLERS
AND PLATES OF ANY TYPE AND DESCRIPTION
WORN ROLLERS RE-ENGRAVED
COMPLETE DESIGNING AND ENGINEERING SERVICE

NORTHWEST FILTER CO.

SEATTLE	VANCOUVER, B. C.
122 Elliott Ave. West	Foot of McLean Drive
GA. 7700	HA. 1185

WATER PURIFICATION

Foster Wheeler Corp., Power Plant and Process Equipment
Buell Engineering Co., Inc., Dust Recovery Systems
Calgon, Inc., Threshold Treatment
Monterey Sand Co., Filter Sand
Hagan Corporation, Combination Control
Hall Laboratories, Inc., Boiler Water Conditioning

WILLIAM R. GIBSON, Representing
Infilco, Inc. (International Filter Co.)

USE BUNKER HILL PRODUCTS PURE LEAD • LEAD ALLOYS LEAD

NORTHWEST LEAD COMPANY
SEATTLE
SAN FRANCISCO LOS ANGELES

Keep informed of news of the entire North American industry by subscribing NOW to PULP & PAPER. 1 year $3.00, 2 years $5.00, U. S., Canada, Mexico and other member nations of Pan-American Union. 1 Year $4.00, 2 Years $7.00 in other countries.

Fill in this coupon NOW and return to PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

NAME .....
ADDRESS .....
CITY AND STATE .....

PFEIFER AND SHULTZ - - *Engineers*

Specializing in the Design of Steam Power Plants

Mills and Industrial Buildings • **Reports** • **Plans and Specifications** • **Supervision of Construction**
WESLEY TEMPLE BUILDING **MINNEAPOLIS 4, MINNESOTA**

CARROLL, BECHTEL and LANGTRY
POWER PLANT CONSULTING ENGINEERS
Division of
Commercial Testing & Engineering Co.
POWER SURVEYS, RECOMMENDATIONS, ESTIMATES
PLANS & SPECIFICATIONS, ENGINEERING SUPERVISION
Architectural & Structural Design Power Plants, Power Piping, Electrical Distribution, Combustion Engineering, Power Testing, Evaluations
307 N. MICHIGAN AVE., CHICAGO 1, ILLINOIS

METCALF & HARSTAD ASSOCIATES
CONSULTING ENGINEERS
POWER and WATER SUPPLY
Arctic Building SEATTLE 4 SEneca 6323

RODERICK O'DONOGHUE
CONSULTING ENGINEER
PULP MILLS—PAPER MILLS
IMPROVED PROCESSES — DESIGNS — REPORTS
420 Lexington Avenue New York City 17

WALTER S. GORDON
CONSULTING ELECTRICAL ENGINEER
Pulp and Paper Mills Industrial Plants
Power Reports and Designs
Perkins Building 108 East 11th Street TACOMA 2 WASHINGTON Telephone FUlton 2544

RAY SMYTHE
Pulp and Paper Mill Machinery and Supplies
REPRESENTING:
RICE BARTON CORP. — HEPPENSTALL CO.
SHENANGO-PENN MOLD CO.
LANGDON COLLAPSIBLE WINDER SHAFTS
NORTMANN DUFFKE CO.
ATWOOD-MORRILL CO.
SMYTHE MULTIVAT FLAT SCREENS
CARTHAGE MACHINE COMPANY
TORK-MASTER CO., INC.
AUTOMATIC VALVE CONTROLS
MACBAIN VALVES—FOR OIL, AIR, WATER
SUTHERLAND REFINER CORP.
PULP REFINING SYSTEMS
501 PARK BUILDING, PORTLAND 5, ORE.
Beacon 0502 & 2238

STADLER, HURTER & COMPANY
CONSULTING ENGINEERS
SUITE 609 DRUMMOND BUILDING
Montreal, Canada
Specializing Since 1923 in
PULP AND PAPER MILLS
FROM FOREST TO FINISHED PRODUCTS
A. T. HURTER, M. E. I. C.

SANDWELL and COMPANY, LTD.
1500 West Georgia St., Vancouver, Canada
SANDWELL and COMPANY, INC.
310 Republic Bldg. Seattle, Wash., U. S. A.
Consulting Engineers

STEVENSON & RUBENS
CONSULTING ENGINEERS
756 Olympic National Bldg. Seattle 4, Wash.
MU 1244
LAYOUT AND STRUCTURAL DESIGNING
BORIS R. RUBENS JOHN H. STEVENSON

ALVIN H. JOHNSON & CO.
INCORPORATED
•
Pulp and Paper Mill
Consulting and Designing Engineers
Serving the Pulp & Paper Industries Since 1929
•
415 Lexington Ave. New York 17, N. Y.

CHEMIPULP PROCESS INC.
500 WOOLWORTH BUILDING WATERTOWN, NEW YORK
CHEMICAL PULPING PROCESS
Hot Acid Cooking and Recovery Systems
Chemipulp—K-C Digester Circulating Systems
Chemipulp—K-C Improved Acid Plants
Digester Waste Liquor SO_2 Gas and Heat Recovery
Chip Pretreatment Preparatory to Cooking
Associated with
CHEMIPULP PROCESS LTD.
403 CRESCENT BUILDING MONTREAL, P. Q.

CHAS. T. MAIN, INC.
CONSULTING ENGINEERS
Process Studies, Design, Specifications and Engineering Supervision
PULP AND PAPER MILLS
Steam Hydraulic and Electrical Engineering
Reports, Consultation and Valuations
80 Federal Street Boston 10, Mass.

"EXCELSIOR" FELTS

The Trademark of Felts of Superior Quality

for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY

CAMDEN, MAINE

Pacific Coast Agents

DAN E. CHARLES AGENCY, 1331 Third Avenue Building, Seattle, Wash.

FIRMS YOU SHOULD KNOW

Advertising Index

Adams Co., R. P. 7
Alaskan Copper & Brass Co. 116
Alaskan Copper Works 117
Allis-Chalmers Mfg. Co. 75
American Potash & Chemical Co. .. 111
Anheuser-Busch, Inc. 4
Appleton Wire Works 93
Appleton Woolen Mills 117

Babcock & Wilcox Co. Inside Back Cover
Bagley & Sewall Co. 6
Baner Bros. Co. 106
Beloit Iron Works 53
Bingham Pump Co. 22
Bird Machine Co. 39
Black-Clawson Co. 59
Bristol Co., The 8
B. C. Bridge & Dredging Co. 107
Buell Engineering Co. 10
Bulkley, Dunton Organization 47
Butterworth & Sons Co., H. W. 106

Cameron Machine Co. 9
Carroll, Bechtel and Langtry 119
Chain Belt Company 17
Chemical Linings, Inc. 117
Chemipulp Process, Inc. 119
Chromium Corp. of America 118
Clark-Aiken Company 87
Classified Advertising 102
Cochrane Corp. 110
Combustion Engineering-Superheater, Inc. 103
Corn Products Sales Co. 110
Crane Company 12

DeLaval Steam Turbine Co. 14
De Zurik Shower Co. 116
Dominion Engineering Co. 18
Dorr Company, The 11
Dow Chemical Company 113

Eastwood-Nealley Corp. 94
Earl Paint Corp. 113
Ederer Engineering Co. 90
Electric Steel Foundry Co. .. 24 and 25
Elliott Company 84

Fabri-Valve Co. of America 115
Fairbanks Morse & Co. 112
Flexible Valve Corp. 116

General American Transportation Co. 16
General Dyestuff Corp. 19
General Chemical Div., Allied Chemical & Dye Corp. 71
Gordon, Walter, S. 119
Goslin-Birmingham Mfg. Corp. 107
Gottesman & Co., Inc. 2
Griffith Rubber Mills 111
Guest & Sons, C. M. 118

Hansel Engineering Co., Ltd. 117
Hercules Powder Company 29
Hermann Mfg. Co., The 109
Heyer Sales & Engineering Co. 115
Hooker Electrochemical Co. 45
Huyck & Sons Co., F. C. 15

Improved Paper Machinery Corp. .. 65
International Nickel Company 21

Jenssen Company, Inc., G. D. 118
Johns-Manville Corp. 91
Johnson & Co., Alvin H. 119
Jones & Sons Co., E. D. 23

Knox Woolen Co. 120
Koppers Company, Inc. 95

Langston Co., Samuel M. 63
Link-Belt Company Inside Front Cover and 32
Lobdell-United Co. 26

Main, Inc., Chas. T. 119
Merrick Scale Manufacturing Co. .. 118
Metcalf & Harstad Associates 119
Moore & White Co. 27
Morden Machines Co. 89
Morey Paper Mill Supply Co. 43
Mount Hope Machinery Co. 109
Murray Manufacturing Co., D. J. 113

Nash Engineering Co. 76
National Aluminate Corp. 60
National Aniline Division 1
Newport News Shipbuilding & Drydock Co. 30
Noble & Wood Machine Co. 55
NOPCO Chemical Co. 77
Northwest Copper Works, Inc. 115
Northwest Filter Company 118
Northwest Lead Company 118

O'Donoghue, Roderick 119
Oliver Corporation 67

Pacific Coast Supply Co. 100
Paper & Industrial Appliances, Inc. 108
Parsons & Whittemore, Inc. 98
Perkins-Goodwin Company Outside Back Cover
Pfeifer and Shultz 118
Powell River Sales Company 62
Puget Sound Pulp & Timber Co. 28
Puget Sound Sheet Metal Works ... 115
Pulp Bleaching Company 118
Pusey & Jones Corporation 79

Rambo, W. H. 118
Rayonier Incorporated 31
Reliance Electric & Engineering Co. 48 and 49
Rice Barton Research Corp. 57
Rietz Manufacturing Co. 116
Robert and Company Associates ... 96
Roehlen Engraving Works, Inc. 118
Rogers & Co., S. C. 114
Roslund, John V. 105
Rust Engineering Company 118

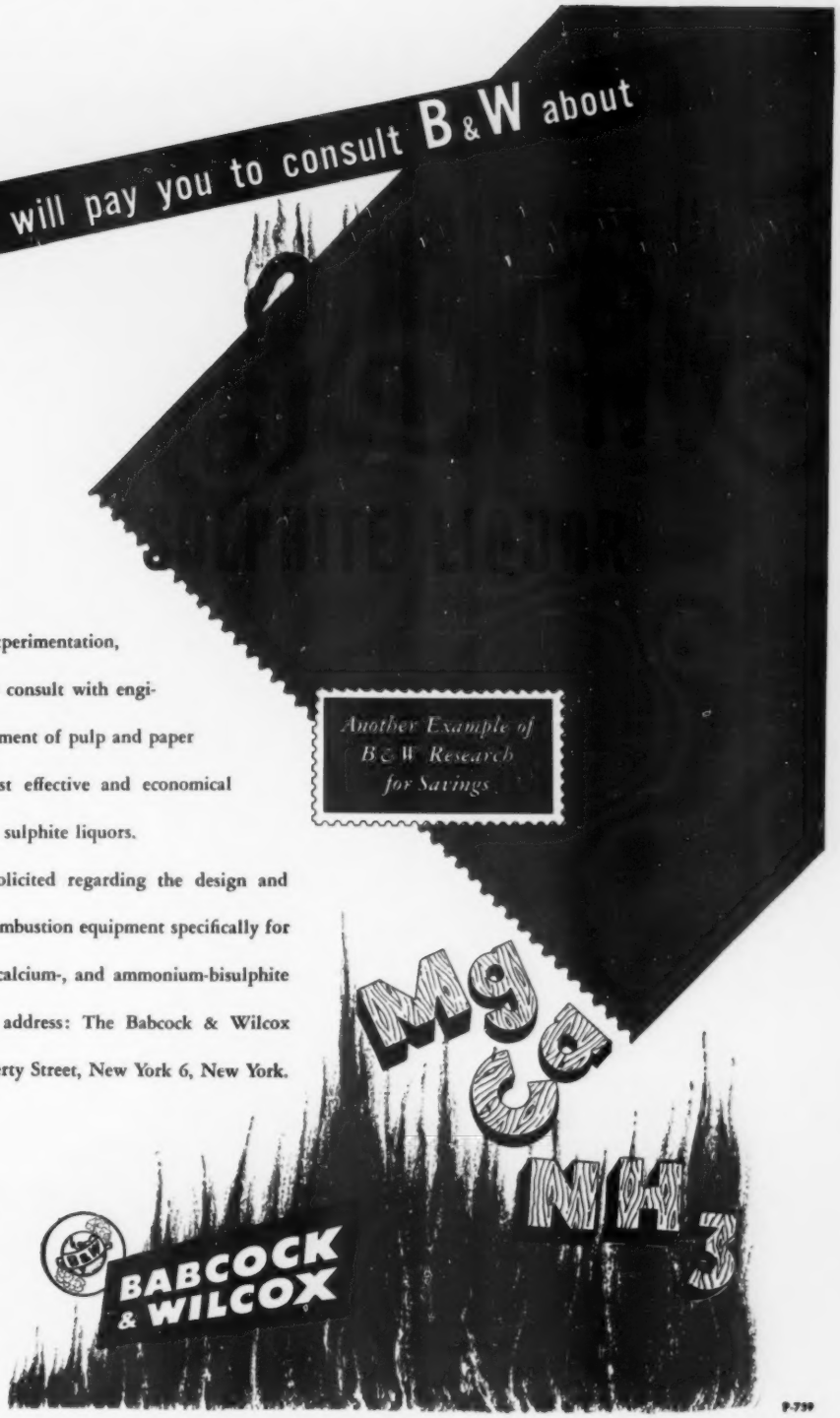
Sandwell & Company 119
Saran Lined Pipe Co. 114
Shafer Bearing Corp. 108
Shuler & Benninghofen 111
Simonds Saw & Steel Co. 33
Sirrine Company, J. E. 118
SKF Industries, Inc. 13
Symthe, Ray 119
Soundview Pulp Company 99
Sprout Waldron & Company, Inc. .. 20
Stadler, Hurter & Company 119
Stebbins Engineering Corp. 102
Stein, Hall & Company, Inc. 97
Stevenson & Rubens 119
Sutherland Refiner Corp. 51
Sumner Iron Works 69
Swenson Evaporator Co. 86

Takahashi & Co., C. T. 117
Tennessee Corporation 112
Texas Gulf Sulphur Co. 5
Thew Shovel Company 83
Titan Chain Saw, Inc. 81

Union Screen Plate Company & Union Machine Co. 104

Wade & Company, R. M. 114
Warren Steam Pump Co., Inc. 73
Washington Iron Works 105
Weber & Co., H. G. 110
Western Precipitation Corp. 101
Weyerhaeuser Timber Corp. 117

it will pay you to consult B&W about



Another Example of B&W Research for Savings

After extensive experimentation, B&W is ready to consult with engineers and management of pulp and paper mills on the most effective and economical means of burning sulphite liquors.

Inquiries are solicited regarding the design and construction of combustion equipment specifically for the magnesium-, calcium-, and ammonium-bisulphite processes. Please address: The Babcock & Wilcox Company, 85 Liberty Street, New York 6, New York.

BABCOCK & WILCOX

P-739

PULP

Perkins-Goodwin Co.

Established 1846

CHICAGO, ILLINOIS

30 ROCKEFELLER PLAZA, NEW YORK

LUFKIN, TEXAS

STOCKHOLM, SWEDEN

PAPER